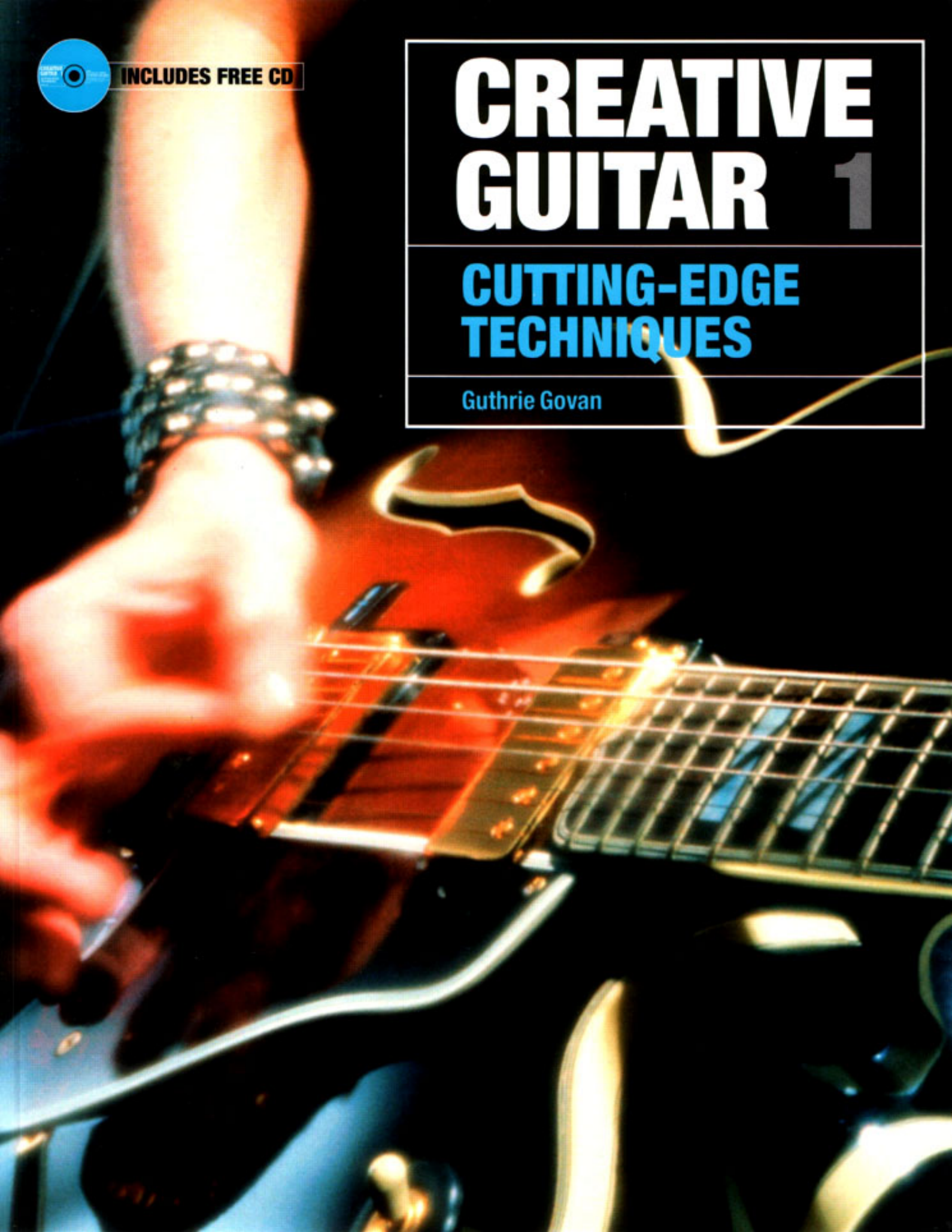
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Guthrie Govan

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Guthrie Govan

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CD CONTENTS

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All guitars played by Guthrie Govan. Bass on tracks 40–3, 46–7 and 50–3 played by Guthrie Govan.

Drums on tracks 34–9, 44–5 and 48–9 played by Pete Riley.

Bass on tracks 34–9, 44–5 and 48–9 played by Seth Govan.

Drum programming on tracks 50–3 by Guthrie Govan.

Drum/loop programming on tracks 40–3 and 46–7 by Phil Hilborne.

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FOREWORD

The aim of this book and its companion volume, *Creative Guitar 2: Advanced Techniques*, is to help any rock guitarist who feels stuck in a rut. They field all of the most common questions and problems I've encountered over years of teaching guitar. They explain the nuts and bolts of theory in an accessible manner that you can actually *use*. They explain how to practise efficiently and diagnose what's going wrong in your playing. They show you lots of new licks. They promote a self-sufficient approach to learning to make sure you're well equipped to explore any aspect of playing that interests you, whether it's in the books or not.

In short, these two books are quite ambitious, so they can't even pretend to constitute any kind of all-encompassing guitar Bible, but my main goal was to get you thinking about your playing and point your playing in some new directions.

I hope I at least achieved that much. Above all, I hope you enjoy working through this book and its companion. Remember, learning about your instrument should never feel like a chore; it's supposed to be fun and rewarding!

See you at the other end...

INTRODUCTION

As a guitar teacher, I meet a lot of guitarists who have reached the same roadblock in their playing: they've had some playing experience, they know a bit of the traditional rock/blues vocabulary, they have a grasp of the basic techniques...but they're frustrated.

Some might express this frustration as 'I'm sure there's other stuff I could be practising; I wish I'd learned properly!' or, indeed, 'People say I play pretty well on a good night, but I feel like an impostor, because I don't really know what I'm doing.'

If you've ever felt that all you ever practise is the same old stuff, playing it faster and cleaner but ultimately not coming up with anything new or anything you can get really excited about, then you might just like this book. It attempts to show you some new avenues to explore, by explaining some important aspects of theory or technique and looking at how you can incorporate such knowledge into your own playing style.

I've tried to arrange this information so that it can be of value to as many players as possible. Theory-wise, I've explained things from first principles, so even if you have no grounding in theory, you'll be able to grasp the necessary concepts without undue suffering (although some concentration might be required from time to time!). In general, whenever you think a chapter has taken you out of your depth, it's probably best to put the book down for a while and spend some time assimilating what you've learned so far. This stuff is all meant to be used, so I would recommend incorporating each idea into your playing at your own pace.

Conversely, those of you who already have some grounding in music theory could quite happily dip into these pages at random. Bear in mind, however, that some chapters might well be worth reading even if they appear to be covering stuff you've already learned. It never hurts to have more than one way of looking at things, and you never know, certain concepts might turn out to be more useful and far-reaching than you thought they were.

The book is divided into five chapters, each with a different angle:

- In Chapter 1, 'General Stuff', I've tried to answer all of the FAQs (Frequently Asked Questions) that keep cropping up when I teach people. Some of it might seem a little too philosophical and weird to be of immediate use to you, but trust me, it's worth wading through, if only because it will raise some interesting questions about how and why you play certain things. There are times when simply thinking about your playing can improve it just as much as any amount of hours spent with a metronome.

- Chapter 2, 'Technique', takes an in-depth look at technique, focusing on efficiency of movement and making your playing feel as natural and effortless as possible.

- Chapter 3, 'Theory Without Tears', tries to simplify music theory, explaining some of the essential jargon, showing you how scales and chords fit

together and touching on the much-feared topic of sight-reading. I can't lie to you – this won't be a fully comprehensive sight-reading course, but it will explain the basic principles and enable you to understand all of the written music in the book. (The rest, of course, is down to practice!)

- Chapter 4, 'Scales And Chords', translates music theory onto your fretboard, explaining a lot of the essential jargon and showing you how scales and chords fit together.

- Chapter 5, 'On The CD', lets you put all of the previous ideas into practice, with the help of various backing tracks. For each track, I've explained the chord progression, suggested a few appropriate note choices and then basically left you to your own devices, so you can apply what you've learned from this book in whatever way you see fit.

Whenever you come across an idea, particularly towards the end of the book, you should use it as a starting point and try as many variations as possible. Try things in different keys, use different scales, experiment with different rhythms – in short, do whatever it takes to make the idea as useful as possible in your own playing.

Right then, let's get stuck in...

1 GENERAL STUFF

Goals

From time to time, I get asked to take guitar workshops. I enjoy doing this immensely, as it means I get to stand up in front of a group of 20 or 30 people, trusty axe in hand, and talk about one of my favourite things: playing guitar.

At one such event a few years back, I found myself rambling about the proliferation of transcriptions and backing tracks on the market today. It's probably fair to say that guitarists have never had it so good – whatever you want to learn, there's probably a high-quality transcription of it floating around somewhere – but my point was that this might be creating a generation of lazy guitarists. I pointed out the importance of having a good ear – the ability to understand what you hear and replicate it on your instrument, to work out solos from records, to jam with other musicians in real time and so on – and wondered out loud if all of these great teaching products might not be impairing the listening skills of the modern guitarist. I've met players who know every note of Steve Vai's monumental *Passion And Warfare* album but can't jam over a 12-bar blues, and I personally find this somewhat disturbing. Are these guys (and yes, this does seem to be a predominantly male phenomenon) actually making music, or are they simply performing the guitar equivalent of typing a dictated letter?

Anyway, there I was at the guitar workshop, lamenting these symptoms of the modern age, when one of the students put his hand up and commented, 'I hear what you're saying, but I don't think it applies to me.'

I was intrigued. He went on to explain that he was a busy gynaecologist who had no intention of revolutionising rock guitar – indeed, he was so busy that he couldn't even get to jam with other people on a regular basis. 'All I want,' he concluded, 'is to come home after a long day at work and be able to play "Wonderful Tonight". I don't have the time to figure it out for myself, so without those transcriptions I wouldn't be able to get half as much enjoyment from my hobby.'

Fair play. I think I was forgetting that not every guitar player has the time or inclination to spend every waking hour studying their instrument, and the above exchange served to remind me that different people play guitar for different reasons. I think it's all valid, as long as it's making you happy.

In terms of how to use this book, I think the moral of the above story is that it's important to know exactly what it is you're aiming for so that you can use your time more productively. How are you going to work towards your goals if you don't know what they are?

If you're happy to work through the occasional transcription of a song you like and you play mainly for therapeutic reasons, or in order to have a couple of party pieces up your sleeve, you probably don't need any 'new directions', although I dare say you'll find some aspects of guitar playing covered here enlightening.

If you're a seasoned live player who has learned by ear, you might sound great but not know what you're doing. Players in this category would probably get a lot from the theory section of this book.

If you're a compulsive shredder (Webster's

dictionary defines this as a heavy metal player whose *raison d'être* is to cram as many notes as possible into each bar in the hope of striking fear into the hearts of his fellow men), you might have encountered a barrier in your quest for greater speeds. If you think you fall into this category, you'll probably be interested in the section of this book that deals with technique.

Incidentally, I would never cast aspersions on this Olympian mentality regarding technique. After all, if an obsession with speed motivates someone to practise more, it can't be all bad! However, you should consider the question 'How do I know when I'm fast enough?'. I guess that honing your technique for its own sake is as valid a hobby as the next, but I put it to you that there's no point in being able to play any faster than you can think. If you find you've reached that point, you probably need some new ideas!

I suspect that music was invented with communal purposes in mind – ie a musician is meant to play *with* people and *to* people, communicating with fellow bandmembers and audience alike. I value that aspect of music immensely and think that a valid musical goal is to be a functional part of a gigging band. Think about it – you're part of a team, you're entertaining people, there's beer to be had... If these are your priorities you might well be happy to focus on improving your interaction with the band and the audience, your time-keeping, your ability to groove and so on. Certain areas of this book will really encourage you to focus on these issues, but you'll have to find them for yourself!

Another common goal among many guitarists is to idolise a certain player, buy the same equipment, dress the same and generally attempt to ape every nuance of their hero's playing style. This might raise certain psychological issues – I know one player who sounds more like Eric Clapton than Eric does, and frankly it's a little bit creepy – but in general there's no harm in this. If it motivates you to play, why not?

Ultimately, though, I think that the most valid thing a player can do is treat this hero worship as a phase – once you've figured out what it is you like about a certain guitarist's playing style, maybe you should move on and try to find your own sound. Learning from great players is invaluable – Eddie Van Halen's playing style would have turned out very differently if he hadn't spent his youth working out Clapton licks – but if you make it your ultimate goal to sound exactly like someone else, I think that in the long run you'll stunt your own musical growth.

Food for thought: wouldn't it be great to hear someone who could emulate George Benson, Jeff Beck, Shawn Lane and Jerry Donahue all at the same time? What I'm suggesting is of course preposterous, but my point is that you should try to learn from everything you hear rather than develop tunnel vision by focusing too much on one player. In this way, you'll end up absorbing a range of different influences and combining them in a unique way, and the results are far more likely to sound like you.

Keeping An Open Mind

The sole point of this section is to preach the tenet 'Don't shun forms of music through prejudice'. An aversion to heavy metal, for instance, might well prevent someone from discovering two-handed tapping, therefore missing out on a tool that can create not only Van Halen-esque histrionics but also some very distinctive keyboard-like chord voicings. In contrast, a seasoned rock player might be familiar with tapping techniques but have no knowledge of the Eastern pentatonic scales that make Marty Friedman's style so distinctive. And if you listen to Michael Lee Firkins' eponymous debut album, you'll hear a predominantly rock-based player using his whammy bar to create country-tinged slide-guitar effects rather than the ubiquitous divebombs you'd expect to hear from a player in his genre.

I love seeing the expression on a blinkered metal player's face the first time they hear a good recording of Paganini's *24 Caprices* for violin, or indeed *Friday Night In San Francisco*, an acoustic *tour de force* featuring Al DiMeola, John McLaughlin and Paco de Lucia. Whatever your chosen style, you'll be pleasantly terrified by Mark O'Connor's album *The New Nashville Cats*. (If Mark's incredible fiddle playing doesn't do it for you, you'll at least have to admit that his pedal-steel player knows some licks that would sound great on guitar...if you could only figure out how to do them!) Meanwhile, if you're more of an acoustic player, you should similarly be aware of the percussive

two-handed styles developed by the late, great Michael Hedges.

In short, listen voraciously to as much varied stuff as possible. The Dalai Lama's 'Instructions For Life In The New Millennium' included the advice 'Once a year, go somewhere you've never been before', and in the same spirit, it's good to remain open to music that has nothing to do with guitar playing, and indeed to look into forms of music about which you know absolutely nothing. (Have you ever attended a live performance by a really good orchestra?)

One final example: you should definitely get hold of the album *Jeff Beck's Guitar Shop* and cue up track 5, 'Where Were You?'. On this track, Jeff manipulates harmonics with his whammy bar to create some of the most haunting phrases you'll ever hear, and he swears that his inspiration was an obscure album of Bulgarian choral music.

Transcribing

I think it's very helpful to keep a notebook of what you're working on so that you can capture chord progressions and licks as they occur to you. Even if you don't feel comfortable with music notation, you can still document your ideas in the form of tablature (the guitar-specific system of notation using six horizontal lines to represent the strings of your guitar as you look down on them from a playing position, with a succession of numbers indicating the appropriate frets). Accomplished sight-readers tend to sneer at tablature as 'notation for idiots', but it's worth remembering that all of the early composers for guitar and lute used a form of tab as their standard method of notation, so I think it has a certain validity. It also has one advantage over conventional notation in that it shows you exactly where to play everything.

This idea becomes increasingly important when you start pilfering licks from recordings by other players. It's worth honing your transcribing skills so that you can keep a permanent record of everything you learn – after all, there's only so much information your memory can retain. I would suggest documenting individual licks rather than trawling through a whole solo just for the sake of two bars you particularly like, and the most practical approach to this is to note down the context of each idea (ie which chord it works over) and to come up with variations of your own. Jazz players are particularly fond of the idea of building up a 'lick library' – they'll categorise each idea in terms of the scale it uses and the chords over which it would fit.

At the beginning of this chapter, I mentioned the concept of having a good ear and of being able to reproduce what you hear, and this is obviously of paramount importance when you're transcribing. Developing a good ear hinges on your ability to recognise intervals (the distances between notes, in terms of tones and semitones) and rhythmic patterns. You'll find plenty of advice on this later on in the book, so I don't propose to go into too much detail here, but I think that a few general pointers might be helpful.

It's best to start with the overall structure of a piece, mapping out the chord progressions and figuring out how long each chord lasts, in terms of beats and bars. If there's a particularly difficult section, you would start by notating the general rhythmic outline and then marking the most prominent notes (ie those that strike you as being particularly loud or those that seem particularly high or low in pitch) and finally filling in the gaps. If you think that all of the notes in a lick come from the same scale, you should make a note of it.

The other skill to hone is your ability to hit the Pause button on your CD player. Every time you listen to a passage, you should be focusing on a particular note or group of notes; once you've heard the bit you're interested in, you should immediately pause the music – anything you hear after that will only distract you, blurring your mental snapshot of the notes you need to know. In theory, you should be able to work out any lick using a one-note-at-a-time approach – as your ear develops, you'll be able to assimilate the information in larger chunks.

Slowing things down can be a great help, and there are now 'phrase samplers' on the market designed with this in mind (Akai make a popular one) which slow down the music by time-stretching it so that the pitch remains constant, regardless of the speed. If you have a computer, you might enjoy using an inexpensive and aptly named program called Amazing Slow-Downer, which does the same thing as a phrase sampler and also features a Karaoke function that uses phase

cancellation to remove the signal from a selected part of the stereo image. In English, this means that you can often make the guitar more audible by reducing the volume of certain non-guitar elements in the mix. The easier things are to hear, the better, and even if you're using your humble hi-fi, you can still try to optimise the signals you want to hear by experimenting with the pan and EQ controls.

Having said that slowing stuff down is helpful, I should add that it's not the solution to all of your transcribing problems. When you're trying to figure out where a lick is played on the fretboard, it's important to try the notes in various positions on the neck in order to hear which strings best reproduce the tone of the original, and this is far easier to do when you're listening at the right speed.

By way of a simple example, try playing the open top E string, then the fifth fret on the B string, the ninth on the G, the 14th on the D, the 19th on the A and finally the 24th – if you have it! – on the low E. You'll hear the same note every time, but the tone gets progressively woollier as you move up the neck. With a little practice, you'll be able to tell roughly which string is being used for any given note. Failing that, you could try the lick in several positions and determine which feels easiest – surprisingly often, this turns out to be the correct one.

As a final note, I'd like to try to sell you the idea of using a MiniDisc player when you're transcribing. When you're rewinding a tape or cueing up a CD over and over again, you actually spend most of your time listening to stuff that you don't need to hear. While MiniDisc recordings undoubtedly sound a little more plastic than CDs, they allow you to put in lots of track markers. This means that you can cue back to the right part of a piece of music with one push of a button, saving you lots of time and allowing you to get more done before you reach the limits of your attention span.

Recording Yourself Playing

I always try to emphasise the benefits of incorporating some kind of recording device into your practice routine. If you record your playing, you can listen back and make an honest, objective appraisal of your strong and weak points. When you're actually playing, you don't always interpret what's coming out of your amp in the same way that your audience might, because you have to concentrate on the mechanics of your playing as well as listen to it.

Recording yourself also provides a good means of monitoring your long-term progress. If you're frustrated by, say, your picking hand's apparent lack of improvement, it can be quite enlightening to listen back to what it sounded like six months ago, or even a week ago. In addition, committing your playing to tape (or whatever your chosen medium might be) can help you to become less self-conscious, which is surely a good thing – as we all know, people make more mistakes when they're nervous!

The other great thing about having a Record button within your reach is that you can make your own backing tracks at a moment's notice. If you're trying to familiarise yourself with the sound of a new scale, you could record a couple of minutes of a rhythm track using an appropriate chord progression (more on this later) and try out the notes over that backing track. You'll learn a lot more about the inherent sound of a scale if you hear it in context.

Your DIY backing track needn't be anything fancy – a mono tape recorder will do the job more than adequately – as you'll cease to care about the production values once you start playing over it. A hissy recording of yourself strumming an E chord while your washing machine conducts a vigorous spin cycle in the background might not be the most inspirational of accompaniments, but at least it's *something* to play along to, and it will make your practice routine feel a lot more like 'real' playing. Most importantly, it also helps to develop your understanding of how the various notes of a scale sound against appropriate chords.

If you find this kind of idea intriguing, you might want to try working with a phrase sampler like the Lexicon JamMan, the Boss Loop Station or the Boomerang. Gadgets like these allow you to loop a chord progression and then record additional layers on the top, which is very handy if you're trying to write a song or come up with a harmony part for a solo. (Incidentally, I ended up buying a Boomerang for exactly this kind of thing. Initially, I found it hard to justify the expense, until I realised that you can make the thing

loop the chord progressions of various jazz standards while you solo over the top. A few Pizza Express-type gigs later, the thing had paid for itself, and so far it's proved to be beer-proof and generally indestructible!) If you're happy with half a minute's worth of memory, you could check out something like the Line6 Delay Modeler, which weighs in at half the price of a Boomerang and also features lots of delay and echo effects. And even the Hold function found on many older delay pedals will give you a second and a half or so of sampling time – enough to capture the sound of a chord so that you can jam over the top of it.

The logical extension of this is to get some sort of multitrack recorder and focus on your ability to write tunes. This forces you to view your guitar playing as part of the music as a whole, which is a healthy mindset to have. Also, the areas of your technique that you feel the need to work on will be dictated by the demands of each piece of music you write, so your playing will evolve in ways which complement your musical ideas rather than float off into bizarre realms of technique and theory that you might never need.

Top tip: FINISH THINGS! Successfully writing one whole tune will be more beneficial for your musicianship than writing 20 small chord progressions and never bothering to link them together. One of the key factors in a really effective bit of music is its *structure* – the way in which different sections fit together and the calculated use of devices like repetition, repetition, repetition and the surprise factor! Once you start thinking about these issues, you'll find yourself listening to other people's music with a slightly different agenda.

2 TECHNIQUE

Physical Considerations

Some amazing things have been accomplished by guitarists suffering from physical setbacks. For instance, consider Tony Iommi, the man who wrote all of those demonic-sounding Black Sabbath riffs. The man lost his fretting-hand fingertips in an industrial accident, which would have made many guitarists seriously question the future of their playing careers. Tony, however, decided to make himself some prosthetic leather fingertips, switched to a lighter string gauge and carried on making great music.

Or take Les Paul, that Leonardo da Vinci of the guitar community who pretty much invented multitrack recording and the solid-body electric guitar, not to mention conquering the pop charts of his day and designing the classic Gibson guitar that bears his name. Les's guitar playing has often been overshadowed by his other contributions in the field of music, but if you check out his instrumental recordings from the 1950s, you'll hear a guitarist with great technique, an impish sense of humour and some ideas that were decades ahead of their time. The story goes that, when Les once broke his right arm in a car accident, medical experts told him that his playing days were over. Undeterred, he insisted on having his arm set at a right angle so that the plaster cast would permanently hold his picking hand in a playing position, and he carried on quite happily!

Then, of course, there's the case of Django Reinhardt, who, along with Stephane Grappelli, was one of the leading exponents of the gypsy jazz style and whose fiery acoustic work continues to inspire legions of imitators to this day. Django was caught in a caravan fire that left two of his fretting-hand fingers withered and virtually unusable, except to form a few chord shapes, and yet if you listen to any of his recordings he sounds more dexterous than most guitarists with their full quota of digits intact.

The point is that all sorts of things are possible if you're committed enough to your music. However, I should add that the above-mentioned players were exceptional. They all had the imagination and vision to come up with something unique in their musical output, and they all felt compelled to carry on sharing these new sounds with the rest of the world, regardless of the obstacles that they encountered. People like that are a rare breed, and indeed most of us find that our playing can be severely hampered by injuries far more trivial than the unpleasant ones described above. In other words, playing is a more enjoyable experience if you can just take care of yourself. What follows is a selection of basic self-maintenance advice.

Fingertip Injuries

The most familiar form of pain to most guitarists is surely Sore Fingertip Syndrome. This rather spurious-sounding medical condition (and yes, I did invent it myself) is the result of too much practice, causing your fingertips to feel so tender that it hurts just to touch a string, let alone perform a four-fret bend.

Bear in mind that an experienced guitarist has spent years building up the calluses (areas of abnormally hard skin) on his fingertips. If you subject your own

fingers to the regimen of slight but constant abuse that is guitar playing, they will normally respond by toughening up, becoming a little bit more leathery, more impervious to pain and texturally more like the stuff you'd normally expect to find on the soles of your feet. However, if you make excessive demands of them, they can't always keep up, and the result is sore, shiny red fingertips with the outer layers of skin missing and maybe even a blister or two thrown in for good measure. This can put you out of commission for quite a while and is obviously worth avoiding. Yes, there are rock martyrs out there like Ted Nugent, who claims to have spent every night of his teenage years practising until his fingers bled, and it's a moving story, but really, bleeding fingers are not good things. Blisters are not good things – they cause you unnecessary pain, they make you sound worse and nobody's going to feel sorry for you. If you feel any injuries of this nature coming on, you should stop playing for a day or so to give your digits the recovery time they need. If you push things too far, it could take weeks to get yourself back in working order, by which time you'll have missed enough playing time to cancel out the benefits of that initial, fateful practice session.

The conventional way of protecting your fingertips, by the way, is by dipping them in surgical spirit, which should toughen them up quicker than the old-fashioned just-keep-playing approach.

Following on from this theme of 'prevention is better than cure', I'd like to mention a couple of other things pertinent to the issue of callus maintenance. Firstly, it's a bad idea to pick up a guitar immediately after your hands have been in water. After a shower or a hearty bout of washing up, your calluses are at their softest, and five minutes of normal playing can tear them to ribbons. When they dry out, you'll find that flakes of skin are dangling from your fingers. Sadly, those flakes of skin used to be your calluses. Not good.

Secondly, be careful if you're thinking of raising your action or increasing your string gauge. There are some very good reasons why you'd want to do this, as you'll see in the next section, but it does increase the amount of wear and tear suffered by your fingertips and means that they have to toughen up to a new level of resilience. Remember, slowly does it – even if you've been playing for years, jumping up from .009-gauge strings to a set of .013s can play havoc with your hands.

Thirdly, it helps to change your strings from time to time and also to wipe them clean after playing. Old strings get rusty and abrasive, making sliding up and down them a more painful experience than performing the same movements on a new set.

Fourthly, once your fingers have developed the calluses they need to cope with your playing style, your job is to keep them there. Playing regularly is a obviously a good plan, but I admit that there are always going to be times when this isn't possible – anything from the pleasant prospect of a holiday to the decidedly less pleasant prospect of an increased workload can interfere with your best-laid plans. If you find months cropping up in your calendar in which you know you won't get as much time to practise as you usually do, you might want to invest in a cheap acoustic. The cheaper and more unplayable it is, the better, as playing a real dog of an instrument for two minutes can keep your fingertips in shape as efficiently as playing your favourite shred machine for an hour. (Like 98 per cent of my statistics, that one was clearly made up, but you get my drift.)

Finally, if you're in an Indian restaurant and the waiter brings over your order on one of those sizzling metal skillets that come on wooden bases, you'd better believe him when he warns you not to touch it. I've known a player to have such good calluses that he unconsciously picked up one of those things with his fingers, quite happily poured some food onto his plate and felt no pain until the moment he put the container back onto the table and attempted to remove his hand from it. As you've probably guessed, his calluses had stuck to the hot metal (you can wince now, if you like) and it took him a long time to grow them back.

If you're playing guitar for a living, slightly different rules might apply. Your duty as a professional musician is to get the show done, no matter what. After all, people have paid hard-earned shekels to come and see you, and whatever problems you might be experiencing, your audience doesn't need to know about them. This philosophy explains such horrific-

sounding tales as Buddy Guy sticking pins in his fingertips to accelerate the regeneration of hard callus material (I'm not sure how good an idea this is, to be honest, but it works for Buddy) or Stevie Ray Vaughan's infamous DIY skin graft.

In case you haven't heard this one before, here's a quick bit of background. Stevie's top E string was normally a .013, and it's been suggested that he sometimes went as heavy as an .018 (although admittedly this would have been tuned a little lower than concert pitch). Being a Texan blues kind of guy, Stevie used a lot of wide bends in his playing style, and you can imagine how his fingertips reacted to this insensitive treatment: occasionally, they simply couldn't cope. Stevie's solution was to stick his left-hand fingertips onto his right forearm with Superglue, wait for it to dry and then *rip!* I guess the idea was to borrow some epidermis from a part of his body that didn't need it so much and transfer it to his fingertips, which needed all the skin they could get. (Incidentally, I believe that Superglue was invented during one of the World Wars as a quick way of sticking damaged soldiers back together in situations where there was no access to proper surgical knowhow or materials. Stevie's use of the stuff doesn't sound half as grotesque when you look at it from that perspective. Still, it's a little extreme for most people.)

Moving onto a different example, anyone who remembers the music shops of the 1980s will recall that most bass-playing patrons would make an instant beeline for any bass with no headstock, pick the thing up, adjust the strap so that it resided just below chin-level and then commence furiously slapping it with their thumb. This was almost entirely due to the inspirational work of the bass-playing frontman of Level 42, Mark King, who took slap-bass playing to new heights of popularity and technical excellence. (Check out the live album *A Physical Presence* if you don't believe me.) Constantly pummelling the low E string on a bass with the side of your thumb is about as good for your skin as playing violent blues on a guitar strung with .013s, and Mr King found that the callus on his thumb was prone to cracking open from time to time. His solution was to wrap electrical tape around the area in question. After this, not only did his thumb stop hurting but he actually found that he preferred the sound – the tape added a little click to the start of each note, giving his tone a percussive quality that nicely complemented his slap-intensive playing style. Now, there's a happy ending!

All of the above applies to minor fingertip injuries which will generally heal themselves if you just pamper them a little bit. However, there's another kind of problem that you might encounter that's far more serious and harder to remedy. I'm referring to tendon troubles.

Warming Up

From time to time, a student will approach me with an anxious expression and inform me, 'I've decided to double the length of my practice routine. I've been getting some great results, but for the last week or so, I've felt some strange shooting pains in my forearm and wrist. Is this normal? Should I worry?'

In short, yes, you should worry. If you work your playing muscles and tendons too hard, you could be inviting tendonitis or carpal tunnel syndrome, a horrible condition in which your median nerve (the one responsible for the way in which your hand feels sensation and moves) gets compressed and can't function properly. Problems like this won't just go away, so if you suspect any tendon crises in the making, however slight or irregular the symptoms, you should seek medical advice immediately and go easy on the playing until you've heard an expert's opinion on what the trouble might be. If you're a natural hypochondriac, bear in mind that there's a difference between 'good pain' and 'bad pain'; what you should be looking out for are irregular shooting pains or muscles locking up and not doing what you tell them rather than the slight exhaustion in your hands and forearms after a sensible practice routine.

There are ways of keeping this sort of malady at bay. As with any physical activity, you should warm up before attempting anything too demanding so that your muscles and tendons can stretch nicely. You'll see the same idea at work in any gym – power-lifters and the like will spend a lot of time stretching before they even start to lift anything, and when they do finally move on to weights they'll start with moderate ones

and build up to the heavy stuff, thus protecting their muscles from any sudden, unexpected strains. In the same spirit, you'd be ill advised to pick up your guitar for the first time in several days and immediately launch into an up-tempo rendition of 'Flight Of The Bumblebee'. Technically demanding playing feels easier and is less likely to cause you permanent damage if you prepare for it first by running through a few simple exercises, starting slowly and gradually building up speed.

All of this becomes even more important if your hands have recently been in the cold. Wintry temperatures make your blood retreat as far inside your body as it can possibly go, leaving extremities like your hands with a bare minimum of circulation. If your fingers are looking blue, they're clearly not going to enjoy negotiating a marathon of chromatic scales, so you might want to consider buying a pair of gloves. OK, wearing a pair of mittens might not look particularly rock 'n' roll, but it'll protect your hands from the shock of sudden temperature changes – and they are, after all, the only hands you've got.

Here's a quick anecdote regarding Glenn Gould, an American concert pianist specialising in playing the challenging contrapuntal works of JS Bach. This stuff is musical maths at its most intimidating, often with four intertwined melodies going on simultaneously, and it's enough of a challenge simply to play all of the notes correctly, let alone getting each part sounding distinct from the others, but Glenn's ability to create independence in each part is still a benchmark for any modern pianist tackling the same repertoire decades later. Before a concert, this hugely accomplished musician would plunge his hands into a bucket of near-boiling water, claiming that it improved blood circulation, enabling him to play 30–40 per cent faster and also making his fingertips more sensitive to different dynamic levels (which, I suppose, must be one of the most important factors if your chosen field of music involves a lot of counterpoint). I admit that this method doesn't apply directly to guitar playing – a pianist's fingers spend their time pushing down on nice, smooth keys, whereas a guitarist's have to push down on thin steel wires under high tension, so we need our calluses more than they do! However, it does illustrate the benefits of warming up and generally getting the blood pumping through your hands. Indeed, Joe Satriani apparently likes to put his elbows in hot water before he plays. This might sound a little odd, but playing guitar actually uses a lot of forearm muscles, so it kind of makes sense.

At the other end of the temperature scale, I remember reading an old interview with Jack Bruce, the bassist from Cream, who described using a Kramer bass with a V-shaped headstock and an aluminium neck. On one occasion, he had to perform in a particularly cold part of the world and the bass had been stored at an unwholesomely low temperature. As a result, the palm of his left hand stuck to the metal on the back of the neck, much as it would stick to the inside wall of a freezer, and I really can't imagine how he got through the gig. Fortunately, the aluminium neck has since been consigned to the scrapheap by all leading manufacturers, and there's really no danger of you encountering this problem. (In my defence, it's an interesting story and it's vaguely connected with temperature, so I wanted to throw it in somewhere!)

In general, it's safe to assume that your gear deserves as much TLC as your hands – sudden changes in temperature can play havoc with your tuning, with the tone of your equipment and, in some cases, its actual structure. Valve amps, for instance, don't like being left on all night and then abruptly taken outdoors and thrown into a cold van – the sockets that house the actual valves are prone to crack if subjected to sudden changes of climate. My favourite Strat took months to recover from an outdoor festival in Houston, Texas, on a sweltering day in July with temperatures of around 110°F and exceptionally high humidity. After a few hours of being stored in these conditions, the guitar's neck wouldn't respond to any amount of truss-rod therapy – it simply didn't work any more. Still, I felt more fortunate than the touring double-bass player who woke up in a hotel room in Brazil one morning to find the floor strewn with all the bits and pieces you might need to make a double bass after all the glue in his instrument had melted during the night.

Posture

There's another issue that should be taken into account here: your posture when playing. Many playing-related aches and pains come from bad posture, and I think that the most important thing to bear in mind is that playing should feel natural and comfortable. If it doesn't, you're doing it wrong! You'll be familiar with the general principles at work if you've ever sat through one of those courses that they run in offices, telling you that your computer monitor should be at eye level, your wrists should be straight when you're typing, your chair should be at such-and-such a height, the curve of your spine should look like Figure 1, not Figure 2 and so on.

In guitar-playing terms, bad postural habits might be the result of lots of playing while slumped in front of the TV, staring too intently at your fretting hand or studying a piece of written music when its pages are strewn across the floor, forcing your neck into an awkward angle. In general, you should aim to keep your spine and wrists as straight as possible.

At one time, I had a teaching job that required me to sit in a tiny practice room for nine hours on the trot, and after a few weeks I started to feel an unpleasant, dull pain at the back of my shoulder blade which made playing a lot more of a chore than it used to be. I finally figured out that the cause of the problem wasn't the guitar playing itself; it was leaning over a stumpy table in a particularly inaccessible part of the room, writing out licks and solos for students with my guitar still strapped on. As soon as I realised this, I moved the table nearer my picking/writing hand, added a little pile of books underneath my manuscript paper to elevate it to a more convenient level and the pain went away. Remember that playing should feel as effortless as possible. Try to design your practice environment with this in mind.

Tone

Thought for the day: However technically accomplished you might be as a player, no one will want to listen to you if you don't at least *sound* half-decent.

It's possible to become so engrossed in that addictive quest for better technique or more knowledge that you end up overlooking the vital issue of finding a good tone, but of course this can be hugely detrimental to the way in which people perceive your playing. However amazing your new tapping lick might be from a technical perspective, it won't impress anyone if it sounds like the proverbial bee in a jam jar.

With that spirit in mind, I thought we should take a quick look at some of the more common hurdles confronting any player in search of a good sound. My angle here is to preach the value of using your ears rather than suggest that you need to spend absurd amounts of cash on a new rig. Many people blame their equipment for the shortcomings in their tone when in fact the problem is often something that could easily be remedied by adopting a different playing technique or judiciously twiddling a couple of knobs.

Feedback

One of the biggest problems is that amp settings that sound good on their own often don't work as well in a band context. Bucketloads of overdrive, for instance, might well make your fastest shredding licks easier to play when you're in your bedroom, running through your practice routine, but if you use the same settings at a gig, there's a very real danger that no one will be able to hear what you're playing. Distortion adds a buzzy quality to your tone, and when you've got a whole band playing behind you, this buzziness can sometimes make it harder to distinguish the actual pitch of each note. Backing down the gain a bit might force you to play more accurately, but surely it's worth making this sacrifice if it helps the music to sound better as a whole.

Quite aside from the above, there's another nasty surprise in store for anyone who uses a lot of gain in that high volume levels increase the risk of feedback. Of course, feedback isn't always a bad thing – Pete Townshend and Jimi Hendrix pioneered the use of controlled feedback as a musical effect and more modern players like Joe Satriani have done some great things with the stuff – but I'm referring here to the kind of feedback that makes your guitar howl when you didn't ask it to. When you're cranked up to 11, the slightest provocation will induce your guitar to let loose with a caterwauling screech, so players who habitually play loud with lots of overdrive need to remember little

tricks like always turning down the guitar's volume knob when they're not playing, keeping a respectful distance from the amp and of course being extra careful when muting strings not currently being played. If you can honestly say that you're doing all of this and you're still having feedback problems, it's probably time to admit that you're using unrealistic amounts of overdrive.

It's worth bearing in mind that there are two distinct kinds of overdrive. The first is generated by the pre-amp (the tone-shaping part of the amp where the gain and tone controls live) and is characterised by a fuzzy sound quality that will familiar to anyone who's tried to make their amp sound nasty at low volume levels. The second is the result of overdriving the power amp (the part of the amp responsible for overall volume level, courtesy of the Master Volume knob). This type of overdrive tends to sound more musical – the guitar still feels responsive and you still get all the sustain you could ask for, but the overall timbre is a lot smoother, with none of the buzzy abrasiveness of pre-amp distortion.

Valve amps are particularly prized for their power-amp distortion – the harder you work a valve amp, the more it 'sings' – and most of the classic rock guitar tones we know and love were created with them. Of course, Pantera's Dimebag Darrell gets a fantastic sound out of his solid-state (non-valve) Randall stacks, but this is really the exception rather than the norm; most rock guitarists prefer the ways in which valve amps respond to their playing, and the more successful solid-state designs normally claim to feature some sort of tube-emulation circuitry anyway. (To be fair, you might actually prefer the sound of solid-state amplification if your main priority is getting a crisp, clean sound at high volume levels. Let your ears decide.)

Given that a decent amp sounds best when it's working hard, it makes sense to use an amp that kicks out a *usable* volume level when cranked up in this way. If you bought The Amp Of Doom and never found the opportunity to turn it up properly, it would be about as much use to you as a Ferrari in a traffic jam. There are many situations where it's worth considering a relatively low-powered valve amp – in a gig setting, for instance, you'll normally find that the soundman is violently opposed to the idea of the guitar being too loud onstage. (This is because his job is to achieve a separate signal for each instrument, and the sound of a wall of Marshalls at full tilt will affect every microphone on the stage.) In studio terms, I need only remind you that Jimmy Page used a tiny Fender Supro amp to record the far-from-tiny guitar sounds you hear on the early Led Zeppelin stuff...

EQ

Another vital element in the attainment of tonal nirvana is EQ. Imagine a spectrum of sound, with the low, rumbling stuff (ie kick drum and bass) at one end and the treblier components (ie cymbals) at the other. This is the way in which producers and engineers approach sound when they're mixing a track – rather than simply mess around with the volume levels, they try to emphasise different frequencies for each instrument so that every sound is assigned its own place in the 'spectrum'.

As a guitarist, you should be looking for that part of the sonic spectrum that the other musicians need the least, and you'll find this niche somewhere in the middle, so your best bet is to crank up your amp's mid range. I know that a mid-heavy guitar sound can have an unpleasant honky, nasal quality when you hear it on its own, and many bedroom-bound players gravitate towards a tone with relatively little mid range, but trust me – in a band context, tones like that will come across as thin and weedy. If you pump up the mids, your sound will cut through better without drowning out your fellow bandmembers. Everyone gets heard, so everyone is happy – including the audience!

Furthermore, if you want to make your solos cut through a little more in the overall sound of a gig or recording session, dialling in a little extra mid can be every bit as effective as turning up your volume, and some guitars have switchable mid-boost circuitry for this very purpose.

Having extolled the virtues of the mid range, I should point out that there are exceptions to all of the above, notably the clean, glassy funk sound you often get on pop records (where the guitar's role is more about providing a percussive effect than playing an up-front melody) or the chunky metal riffs associated with players like Metallica's James Hetfield. That

crunching, evil-sounding rhythm tone is often described as *scooped*, which means that the bass and treble are boosted while the mid range is cut. (Think of a graphic equaliser set in a V shape.) Add liberal doses of overdrive and *voilà* – the sound of Satan! This scooped tone is great if used in appropriate places, but you should bear in mind that it swallows up a lot of the frequencies normally reserved for the bass player. Done properly, the bass/scooped guitar combination can sound like one monstrously fat-sounding instrument (which is a good thing!), but it's something that works best in heavy, riff-based music; in most other contexts, it's more important to hear the bass distinctly.

Effects

While I'm still on the topic of being heard clearly, now seems like a good time for a quick word on effects. Most of the factory presets on multi-effects units feature huge washes of reverb and chorus, offensively loud delay and far too much overdrive. Why? Because the manufacturers know that their prospective buyers will be trying out their units on their own, in a music shop. The more lavish the presets sound, the more impressed the customer will be. However, when you take your new multi-effects unit to its first band rehearsal, you'll normally find that you have to modify all of the presets by reducing the amount of each effect. Signal processing is a wonderful thing when used in moderation (much like absinthe), but use too much of it and you'll suffer a loss of clarity (again, much like absinthe!). If you drown your guitar in effects, it'll sound somehow more distant, as if the sound is coming through the wall from the room next door.

Another effects-related issue involves the volume at which you're playing and the nature of the venue. No two buildings produce exactly the same sound, but every venue has some kind of inherent reverb, as illustrated by the names used for different reverb programs – 'Cathedral', 'Small Hall', 'Live Room' and so on. Since the venue is providing natural reverb at no additional charge, it seems logical to back off the amount of artificial ambience generated by your rig.

Of course, the importance of this will depend on the size and shape of the building, not to mention the absorbency of the wall surfaces. I once did a tour of Germany where about half of the venues were converted breweries, and I discovered what happens when you put a noisy rock band in a giant concrete box with a high ceiling and an abundance of metal pipes. The echo is abnormally pronounced in these places, and the only way to make things work is to keep the effects to an absolute minimum and to curb the volume levels.

Tone Controls

Forgive me if the following sounds obvious, but I think that many players overlook the many tonal variations they could be coaxing from their guitars by playing around with the volume and tone controls. If your amp is on a fairly clean setting, the Volume knob pretty much does what it says on the tin, but in a more overdriven context the same knob affects not only the volume but also the fatness of what's being played – the guitar produces a thick tone when it's turned all the way up, thinning out as the volume is backed down. Turn the thing down nearly all the way and you'll find a perfectly usable clean tone with more bite and top end than you could get from your amp's clean channel. (For a good illustration of this, consult the clean tone you hear on Van Halen albums. When Eddie designed his signature MusicMan guitar, he actually stipulated that its single Volume knob should be labelled 'Tone' on the grounds that he would be using it mainly to control the *saturation* of his overdriven sound rather than to alter its actual loudness.) Many players in the blues/rock field can happily get through a whole gig using a one-channel amp, controlling their volume and overdrive levels from the guitar itself.

Incidentally, this stuff also applies when you're using your amp's clean channel. I've encountered a lot of students who try to get a decent clean tone simply by following the formula of selecting their front humbucker and turning off the overdrive. This can result in an overly boomy sound that people are always keen to blame on their gear. If you find this predicament familiar, bear in mind that backing down the volume a couple of notches can often thin things out effectively and eliminate that boominess, so experiment.

The tone control is equally neglected by some guitarists – metal players in particular are prone to select the bridge humbucker and turn every knob up to 10 as their default setting – but it's worth investigating the range of sounds you can get by rolling down the tone in gradual increments. If you're at all partial to Eric Clapton's 'woman tone' (ie the sound you hear on the Cream albums) or Robben Ford's distinctively honky lead sound, you'll know what can be achieved in this way. Of course, if you turn down the tone too much, you run the risk of sounding mushy and indistinct, but you'll normally find sweet spots somewhere in the middle of the control's range.

(As a quick aside to Strat owners, you'll find a nice approximation of the classic humbucking sound if you set your pick-up selector switch to position 2 or 4 and roll down the middle pick-up's tone control. This will mix together the sound of two pick-ups, with one providing the 'honk' and the other providing the more trebly stuff, resulting in a pleasingly thick yet defined tone.)

Of course, you won't necessarily find one tone-control setting that serves all your needs. If you're using a lot of harmonics, you'll want as much treble as possible in your sound, but if you're playing fast single-note runs with a relatively clean tone, you'll find that too much treble can expose the weaknesses in your technique and that rolling off the tone somehow helps to make your playing sound a little more 'perfect'. (Have you ever wondered why those jazz guys are so fond of turning their tone controls down? Or why your Vai-esque scalar picked runs sound smoother when you switch to your neck pick-up?)

Picks And Fingers

Have you ever approached a guitarist after a gig and asked how he got that amazing tone only to receive the less than helpful reply 'It's all in the fingers, man'? I admit that he might have told you this because he didn't want anyone else to know what pick-ups he uses or how he wires his pedals together (some people are very protective of their trade secrets), but in general creating a good tone really *is* all in the fingers.

One specific factor here is the way in which the pick strikes the string. For instance, if you use the flat of the pick (ie with the plane of the pick parallel to the string), you'll get a round, full tone that really brings out the best in your George Benson licks. If, on the other hand, you slowly curl your right-hand index finger inwards as you grip the pick, you'll find a position where the pick is twisted around at a 45° angle. In this way, you're striking the string with the edge of the pick, which gives you a sharper tone and a grinding attack more appropriate for those Gary Moore-esque angry moments. The former approach is generally held to be the 'correct' way to pick, but I think that both are valid – if you can comfortably use your pick at various angles, you'll increase the range of your tonal palette without having to spend any money.

Here's another variable to consider: what part of the string are you picking? Picking near the bridge gives a tinny, metallic sound, while if you move the pick closer to the neck, the tone becomes fuller and warmer. (If you're ever bored, you might like to investigate what happens when you actually pick over the fretboard – you'll find some bizarre Zappa-esque sounds there.) Bear in mind that playing fast becomes very difficult when you stray too far neckward, particularly if you favour light-gauge strings, as the tension is looser there, so the strings move further, which makes them feel frustratingly like rubber bands.

Of course, you could always try life without a pick. Jeff Beck once uttered the immortal line 'Picks are for fairies', and while that might be a little hurtful for pick users and fairies alike, you can't argue with the vast range of tones that Jeff creates with a purely fingerstyle approach. There's something more immediate about playing with your fingers – it feels like you have more control, and many would argue that it also produces a purer-sounding note.

If you're quite attached to your pick (and some things are undeniably impossible without one), you might like to try a combination of pick and fingers to get the best of both worlds. This is a style of playing you would normally associate with country players – Albert Lee, Jerry Donahue, Danny Gatton, Brent Mason, Scotty Anderson, the list goes on – but listen to Brett Garsed, Bumblefoot (the artist formerly known as Ron Thal) or indeed Stevie Ray Vaughan and you'll hear some very different applications for the pick-and-fingers approach.

Guitar Set-up

The other considerations you need to worry about involve the way in which your guitar is set up.

Low action might make playing easier, but it doesn't give the string much room to vibrate, so your attempts to play loud notes will sound constipated, while the more you raise your action, the bigger the notes get. The only problem is that playing a guitar with a high action hurts after a while, so you'll need to find a compromise where the notes ring out properly but you aren't suffering unduly.

Similarly, light string gauges give you that effortless feeling when played, but they also produce a weaker-sounding note, partially because there's less metal moving through the pick-up's magnetic field and partially because they lack the power to get the body of the guitar vibrating properly. Fat strings not only sound better, they break less and they're easier to keep in tune, but the pain factor rears its ugly head once again – bending a .014" top E string up a tone can be a traumatic experience! As before, you should seek a compromise between tone and comfort. I'm not suggesting you should double the size of your strings overnight, but it's probably fair to say that, if you try going up a gauge, your fingers will get used to it within a month or two, playing will feel as easy as it did before and your tone will be that little bit more authoritative. Which brings me to my next topic...

String Bending

One of the guitar's biggest selling points is that it enables you to bend strings. This not only allows you to make a note glide smoothly from one pitch to another; it also facilitates *vibrato*, a rhythmic fluctuation in pitch that effectively makes the note sound more wobbly. These are the kinds of subtleties that give the guitar its vocal qualities – you can be more expressive on a guitar than you ever could on an instrument like the piano, where bending a note is a physical impossibility.

Your ability to bend a string is governed by a number of factors. A heavy-gauge E string, for instance, is obviously under a lot more tension than a lighter one, so bending it is harder work. This increases the risk of a note slipping out from under your fingertip mid-bend, unleashing a loud and decidedly unwelcome open string. This happens most commonly when your hands are sweating a lot, but it's a problem that can strike at any time, and when it does, any casual listener will immediately know that you've done something wrong; it's one of the hardest clangers to disguise!

There are two ways of combating this. The first is to enlist the help of some other fingers. If a note needs bending and you're using your ring finger to fret it, you might as well stick your middle finger just behind, on the same string, sharing the burden between the two digits. This gives you more control over the bend, although I admit that it doesn't help much when you're fretting with your index finger!

(Actually, the trickiest bends are probably those that involve the little finger. If you try to back up your pinkie with your third finger, you'll find that the difference in length between the two digits prevents them from working together effectively. Instead, try supporting the bend with your middle finger, tucking it under the near side of your ring finger. Many players find this method easier.)

The other way of maximising your bending prowess is to look at the position of your fretting hand. I think that some players are a little unclear on exactly how to bend a string, so here's a pointer: your fingers aren't supposed to do all of the bending by themselves! Once they can feel the tension of the string, they should lock in that position and let your wrist take over. A twisting motion of the wrist, pivoting off the thumb-and-forefinger side of your hand, will effectively force your fingers to glide over the fretboard, taking the string with them. All your digits have to do from this point is try not to buckle when they feel the resistance of the string. As long as they retain their grip on the note, the wrist will do the rest.

In the world of classical guitar, you would be encouraged to arch your fingers and keep your thumb low down at the back of the neck, creating as much clearance as possible between your palm and the edge of the neck. This is the ideal hand position for playing technically demanding stuff like painful chord shapes or licks featuring wide stretches, but it does make bending harder – it feels like only the very tips of your fingers are actually putting their weight into pushing on the string. If instead you adopt the 'baseball bat'

grip, where your thumb creeps over the top, you'll feel more contact with the wood of the neck and hence you'll get more leverage. In this way, the ends of your fingers will straighten out a little, moving nearer the fretboard, and when you bend a string, you'll be able to put more of each digit behind the bend. This position certainly compromises the range of your left-hand stretch and overall mobility, so don't use it all the time, but it's the best way of executing a big bend without injuring yourself. As it happens, it's also the best way of replicating Hendrix rhythm parts – plenty of otherwise-impossible chord voicings become playable when you use your left-hand thumb to fret notes on the low E string.

This last point is particularly appropriate when you're bending a string upwards. If you're playing on the lower strings, it's more likely that you'd want to bend downwards, towards the floor, and there's one subtle difference when you bend a string in this way: you need to curl your fingertip a little more so that part of it is effectively on top of the string. If the string keeps slipping, you probably need to fret the note with a different part of your fingertip. Try one of the fleshier areas, slightly further away from the nail.

Your equipment also plays a big part in this whole string-bending business. For a start, there's the issue of neck radius. If you're unsure what that means, hold up your guitar at eye level with the headstock pointing away from you and the pick-ups facing the ceiling. As you look down the line of the neck, you'll notice that the fretboard is cambered (ie it looks slightly convex) and the frets are curved accordingly. The more curved the fretboard looks, the narrower its radius. The term *radius* makes sense if you think of the fretboard as a small section of a cylinder, rather than as a mere plank.

The camber of the neck, I should explain, is there to make life easier when you're playing things like barre chords. Unfortunately, this luxury comes at a cost – as you bend the top E string towards the centre of a heavily cambered fretboard, the action effectively gets lower. If your action is low in the first place, your bends will be impaired by being choked, which is what happens when the string actually comes into contact with the higher frets and can no longer vibrate. This is why most pointy heavy-metal guitars have relatively flat fretboards whereas '62 Strats have a lot more camber – they were designed with very different playing styles in mind. If you're partial to a bit of wide bending but can't live without your low action, you need a fingerboard with a wide radius or perhaps a *compound radius*, where the curvature gets less pronounced as you move higher up the neck.

The size of your frets can also make a huge difference to the whole bending experience. Taller frets make it easier for you to get a decent grip on the notes, and this is particularly true when you're using heavy strings. Stevie Ray Vaughan's frets, for instance, were enormous! The logical extension of this idea is to use a scalloped fingerboard, where the wood between each pair of frets has actually been scooped out so that you don't feel anything under your fingertips when you play. This idea has been popularised by players like Yngwie Malmsteen, and players ranging from Ritchie Blackmore to John McLaughlin have also dabbled in it. It's great for those violent bends, but many people find it hard to get a simple chord sounding in tune on a scalloped guitar – there's no wood there to tell you if you're squeezing the strings too hard – and things can also get problematic when the time comes for a refret.

Here's a comical-sounding exercise I sometimes try out on students who need to work on their bending. Try taking a scale or melody you already know and moving the entire fingering down a fret. In order to make the lick sound like it's still in the original key, you now have to bend every note up by one semitone, and the results have an entertainingly drunken quality about them. Playing like this always reminds me of Marty Friedman's phrasing when he's going for that Oriental vibe, and you might have heard Richie Kotzen using similar ideas.

Another interesting exercise is to try "stepped" bends. For instance, take a note on the B string and bend it up a semitone, hold it there for a moment and then bend it up a further semitone. Hold this new pitch for a moment and then let the string halfway down so that its pitch is once again a semitone above that of the original, unbent note. Hold it there for a moment and then release it. If you use .010-gauge strings or lighter, you can apply this to bends as wide as four or

five frets. The general principle is to visit every semitone en route so that the result sounds like a chromatic scale rather than one big bend. This exercise is of great benefit to the accuracy of your pitching.

Vibrato

So far, there's been much talk about how to bend a note from one pitch to another. Now it's time to turn our attention to the important matter of vibrato.

Everyone plays vibrato differently, and the ability to wobble a note nicely is one of the most important factors in your overall sound. The best way of honing your own vibrato technique is by trying to emulate the way your favourite players do it. I would cite players like BB King, Peter Green and Paul Kossoff as worthy all-round reference points, and if you like things to sound a little more violent, you might be inspired by Angus Young, Yngwie Malmsteen or the remarkably angry-sounding Zakk Wylde. The greater the variety of vibrato effects you can coax out of your instrument, the more versatile you'll be as a player, so adventurous readers might even want to look beyond the realms of other guitarists and try to get a vibrato that sounds like Pavarotti's voice, or indeed Marc Bolan's – if you think you're odd enough!

As with any other kind of bending, the key to making vibrato work lies in using your wrist to control the actual pitch of the note, while your fingers' job is to make sure all of that wrist movement is transferred effectively to the string. A good exercise is to pick a note and then alternate constantly between bending it up a fret and releasing it again. Start slowly and rhythmically; as you gradually build up speed, the effect will start to sound more like a single note being played with vibrato rather than two distinct notes. For some reason, your ears tend to perceive the unbent version of the note as the 'correct' pitch, even if you increase the width of your vibrato to three or four frets.

Having said that, it's a slightly different state of affairs when you've bent note A up to note B and you want to add vibrato to the latter pitch. (Think of those big, languid bends at the start of Hendrix's 'Red House'.) When you add vibrato to a bent note, your fingers have to memorise the amount of tension needed to bend the note all the way up to pitch and then apply that amount of force constantly as your wrist shakes. If you relax for a moment, the pitch will start to drop and the whole effect will be spoiled. Trickier though this approach might be, it does put some new sounds at your disposal. If you pre-bend a note before you pick it, you can achieve a slightly Brian May-like effect where your vibrato rhythmically *lowers* the pitch slightly rather than raising it. This sounds just as in tune as the normal kind of vibrato, but I think it has a distinctly sweeter flavour to it. Of course, it's surely worth being comfortable with both kinds of vibrato so that you can play any given note in a variety of ways.

The other great thing about vibrato, apart from the undeniably 'human' quality it imparts to a note, is the way in which it can increase your sustain. The basic vibrato motion constantly rubs the string against the fret, which means that the fret is in effect bowing the string from underneath, keeping the vibration going for longer. (This is the opposite of the side-to-side vibrato favoured by classical players, the difference being a product of the fact that classical players use nylon strings rather than steel ones and that the two materials have very different elastic properties. 'Cavatina'-style vibrato doesn't really work on an electric guitar, but then again you couldn't play the solo in Steve Lukather's 'Rosanna' on a classical, so the old swings-and-roundabouts adage suggests itself!) If you fire up some gain on your amp, you should be able to sustain a note indefinitely purely by applying a constant vibrato to it – think of the intro to Hendrix's 'Foxy Lady'. Keen multitrackers take note: you can layer up an interesting approximation of a string section using this technique.

Hopefully, thinking about this sort of stuff will help you to develop an effective and versatile vibrato technique. Approaching the whole vibrato issue a little more obliquely, you might also like to consider the following...

- Eric Clapton's playing is a textbook example of how you can really make a note sing, and yet when you watch footage of the man playing you'll notice something a little unusual: when he's adding vibrato to a long, sustained note, he tends to remove his thumb from the back of the neck so

that only his fingertip is actually in contact with the guitar. As always, the idea is for your finger to remain rigid while your wrist does the shaking, but you might well find it more difficult to maintain contact with the string without having your thumb there to guide you.

To prevent the whole neck from moving around as you shake your wrist, it helps to grip the body of the guitar with your right forearm, pushing it slightly against the right side of your own body. In this way, you can use your forearm to resist the pressure applied to the neck by your fretting hand, and the thing should stay still. Most players find this approach harder and less reliable than the time-honoured baseball-bat-style grip, but it's worth checking out. With a little practice, you'll be able to obtain a really fast, sweet-sounding note.

- If you prefer your notes to sound more vicious, you might like to experiment with the Zakk Wylde tactic of bringing your picking hand over to the area between the nut and your fretting hand. If you grab the string there, you can add abnormally wide, fast vibrato to a note. For the best results, hold on tight with your fretting hand.

- If you're partial to a bit of slide playing, you'll know that effective bottleneck vibrato is all about moving along the length of the neck rather than physically bending the strings, thus your wrist has to shake in a more horizontal fashion. Apart from that, however, I think that the basic principles of finger vibrato still hold true when you're using a slide.

The biggest challenge for the novice slide player is in keeping the thing in line with the plane of the strings so that you don't hear it rattling along the edges of the frets as you slide. Anchoring your thumb somewhere will make it easier to maintain the correct angle once you've found it, as will resting your index finger on the strings, behind the slide. If you're trying to play single-note lines, you'll soon discover how keen the unwanted strings are to ring out in sympathy, so you need to focus a lot on right-hand muting, and a fingerstyle approach is probably your best bet here.

Slide playing is probably the only style of guitar playing that actually gets easier when you raise your action and switch to fatter strings. This kind of set-up allows you to dig in more, enabling you to achieve a bigger tone without running the risk of pushing a string down so far that it actually touches the frets. If you don't normally use a slide but you fancy giving it a try, it might well be worth starting out on a cheap acoustic with cheesewire action. Then, once you're comfortable with the basic techniques, you can work on refining them so that they work on a more playable guitar. The end result is that you'll be able to incorporate some slide licks into your normal playing.

You'll probably find this easier when you wear the slide on your little finger (it's the one you use the least, admit it!), but in certain situations you might just want to try it on your middle finger. This will allow you to vary the angle of the slide in order to obtain different intervals. Imagine playing the G and B strings at the fifth fret and trying to slide the G-string note up a whole tone while sliding the B string up by a mere semitone. You'll need to bring your finger into a more diagonal orientation as you slide up the neck, and your middle finger can happily do this without falling off the edge of the fretboard whereas your little finger simply can't. Take this basic idea, add a volume pedal and you've got yourself all sorts of lovely pedal-steel effects!

- Many people associate slide playing with Delta blues, but that's not all you can do with the technique. For a completely different perspective, check out Jeff Beck's album *You Had It Coming*, on which you'll find a cover of Nitin Sawhney's 'Nadia'. Jeff's phrasing on this track mimics the vocal line of the original with uncanny precision. It's chock-full of those little microtonal inflections that you normally hear only in Indian music.

While we're on that Indian theme, you should really get hold of an album called *A Meeting By The River*, which features the very contrasting slide styles of Ry Cooder and V(ishnu) M Bhatt. Technically, the latter is

not a guitarist – he plays an instrument of his own design called a *mohan vina* – but you'll hear how his phrasing could be adapted to guitar.

If you want to hear someone being downright weird with a slide, check out the work of David Tronzo, a Steinberger-wielding experimental jazz player. And of course there's always the option of trying a guitar with no frets, which will allow you to slide up an octave with impunity – and you don't need a bottleneck at all, so you retain full use of your fretting fingers. Guitars with no frets tend to suffer from a loss of sustain, but the good people at Vigier make a guitar called the Surfretter which combats this problem with a fingerboard made from some top-secret alloy or another, allowing the notes to ring for longer than they would on a traditional wooden board. If you're wondering what such an instrument might sound like, you could try Bumblefoot's *9.11* album or perhaps something by the acoustic player Antonio Forcione, who's been known to use a guitar-like fretless instrument that he calls the *oudan*. Fretless playing really forces you to concentrate on the intonation of every note you're playing. It might sound a bit too much like hard work, but it's definitely worth a try. If nothing else, it certainly makes you play differently!

Muting Unwanted Notes

This might sound a little bit Zen, but whenever you play a note on the guitar, you also have to not play notes on the other strings. Many players neglect muting because it's a harder area to define than the notes themselves – if you're trying to learn a new song or lick, a transcription can show you where the right notes are, but it won't tell you which notes not to play. After all, why would it? It's very important to listen critically to the way you're playing, and if you hear any noise coming from your guitar other than the note you told it to produce, your technique needs a little reappraisal. Yes, I know it sounds kind of tedious, but sometimes it's good to take something you already know and focus on trying to make it sound as clean as possible. It might not be as exciting as learning something totally new, but it makes your playing sound more musical in the long run.

Palm Muting

So, how do you keep unwanted notes and handling noise down to a minimum? I put it to you that both of your hands have a part to play here. For instance, let's say you're playing the note of E at the ninth fret on the G string. As soon as you strike the string, other strings will be tempted to chime in sympathy, which detracts from the tonal quality of the note you actually meant to play. To avoid this, you should be using the underside of the fingers on your fretting hand to mute any string higher in pitch than the one you're playing (ie the B and top E strings if you're playing the G string). In particular, the index finger seems very handy (no pun intended) when it comes to keeping these strings out of trouble, regardless of the finger you're using to fret the note.

Meanwhile, any strings lower in pitch than the one you're playing (ie the D, A and bottom E strings) can be kept in check by your picking hand. Exactly which part of your hand you should use will depend on your picking technique – everyone picks slightly differently – but it will involve your palm in some way.

Try looking at your palm and visualising all the parts of it that you think might be useful for muting. You should conclude that there's a horseshoe-shaped area of flesh running down the little-finger side of the palm, through the part where your hand joins your wrist and then up the thumb side. You should then be able to decide which part of this zone comes closest to the wound strings when your picking hand is in its habitual playing position. Your goal should then be to train this part to rest on the unwanted strings whenever you play. By making small adjustments in the angle of your wrist, you should be able to find a hand position that enables you to silence the strings you don't need to hear without accidentally damping the note you're trying to play.

This might feel like hard work at first, but if you force yourself to remain aware of your damping technique, it will soon become second nature and you'll be doing it subconsciously whenever you play.

I can think of a few variations on this basic muting idea. For instance, fans of players like Al DiMeola will be familiar with the sound you can obtain by muting the string you're actually playing. To experiment with

this technique, try picking notes while leaning your palm on the strings at the point where they pass over the saddles. It's important here to rest your palm at the correct point along the 'speaking length' of the string (ie the portion of the string that actually vibrates when a note is played). The desired sound is percussive, with less treble and less sustain than a regular note, so if the noise you're making fits this description, you're probably doing it right! As guidelines, remember the following:

- If your hand is too far in front of the bridge (ie too far in the direction of the bridge pick-up), you'll lose the pitch of the notes altogether.
- If your hand is only slightly too far along the string, your palm will let out a note, but it'll sound sharp. This is particularly noticeable on the low E string, which you can easily turn into an F string simply by leaning on it too hard or too far from the saddle.
- On the other hand, if you're resting your palm too far back, you won't really be muting the notes at all and they'll sound exactly the same.

Your guitar responds differently when you're muting at the bridge – your fluid legato licks won't sound as clear but picked passages will take on a new rhythmic quality, with the sound of the initial pick attack playing a more prominent role.

I mentioned Al DiMeola earlier as an example of a player whose style makes extensive use of muted notes, partially because his recorded output demonstrates how effective palm muting can be on acoustic and electric guitars alike but mainly because he's invented an appealing word for it: the *mutola effect*. However, even if you don't have any interest in Al's fiery brand of Latin-tinged jazz or his phenomenal picking technique, I'd still like to try to sell you the idea that palm muting is a worthy pursuit. The riff from The Police's 'Every Breath You Take', as played by that master of minimalist pop guitar, Andy Summers, wouldn't sound half as effective if you'd heard it played without palm muting. The Shadows' rendition of 'Foot Tapper' wouldn't have the same charm about it without the percussive touch. And of course the whole evolution of The Heavy Metal Riff would have gone very differently without the invention of palm muting – I could refer you to Led Zeppelin's 'Whole Lotta Love', Van Halen's 'Ain't Talkin' 'Bout Love' or pretty much anything by Metallica. (The frustrated radio DJ in me wanted to complete that list of examples with a Metallica song also featuring the word 'Love' in the title, but I couldn't think of one.)

Let's stay with the Metallica idea for a moment. The whole sound of that band – and the host of other metal bands that have taken their inspiration from them – is defined by the guitar sound, a heavily overdriven tone with the bass and treble boosted and the mid range taken out. As you'll remember from the section on 'EQ', this isn't the traditional way to set up your rig if you want to be heard clearly in a band context, but for the heavier fields of guitar-based music, I think we have to make an exception. That scooped tone can sound very powerful and menacing if used properly!

If you're playing through this kind of set-up, you'll find the main problem is keeping it under control; a heavily overdriven amp is a frisky beast, and the slightest of accidental hand movements at your end can turn into an enormous and unpleasant racket by the time it reaches the speakers. In a context like this, you have to be more conscious than ever of damping all unwanted strings, just to make sure that there's a difference in volume level between when you're playing and when you're not. You have to be very assertive with your muting technique to get the best-sounding results.

One important feature of many riffs in this style would be the stops and starts. A wall of E5-based mayhem tends to have more impact and a tighter sound if you pepper it with a few gaps, and making the gaps come out cleanly is an ongoing battle for metal guitarists everywhere. If your amp is capable of an appropriately obscene level of overdrive, I would suggest that you try setting it up that way, selecting your back pick-up and devoting a few therapeutic minutes to chugging away on an E5 chord – you know, the one where you hit the three low strings while

fingering the A and D strings at the second fret. Try to cut each one off after the initial crunch, using various bits of your palm in search of the cleanest effect.

You'll probably find that simply sticking your palm on the strings at the end of the chord creates an unwanted thudding noise. If you perform the same palm movement a little more subtly, you can eliminate the thud, but this makes the end of the chord sound more woolly, as it takes a quarter of a second or so for the sound to stop rather than achieving the instantaneous muting you'd like. (A common symptom of this might be a sub-bass rumble, like the noise you'd expect an elephant to make after a bad kebab!)

So what's the solution? Well, I think you need to get both hands involved in the damping process. If you gently bring the palm of your picking hand onto the strings as usual while simultaneously touching them at the other end of their speaking length with the undersides of the third and fourth fingers on your fretting hand, you stand twice as much chance of silencing the chord properly. The lowest strings in particular seem to respond well to this approach, as they're the ones most prone to fits of unwelcome rumbling.

If you've tried this technique and found it disappointingly ineffective, it might be that the muting fingers on your fretting hand are landing too heavily on the strings, which could cause a whole new source of clunking noises or indeed some new notes! Remember to keep your fingers fairly straight and to gauge the amount of pressure you use by making sure that you never actually push the strings all the way down onto the frets.

Other Solutions

Most specialised players use some form of noise gate, which basically won't let any sound from your guitar reach the amp unless it's loud enough to be considered a deliberate bit of playing. This means that those little bits of handling noise never get magnified by the amp, because the pedal realises how quiet they were and very helpfully filters them out. Of course, you can adjust the threshold control to determine how fussy the gate is about what it lets through. Noise gates can make life a lot easier and are indispensable gadgets for those who do a lot of home recording.

Here I should really point out one thing that you probably expected me to say but almost certainly didn't want to hear: a noise gate can supplement a good string-damping technique, but it can't replace it. However much money you spend on your gating requirements, you're still in charge of the basic notes, and the cleaner you can play them, the less noise the pedal has to work with and the more polished the results will sound. (Incidentally, I know of at least one prominent metal band who employ a backstage tech with the basic job description 'Learn our set inside out so you can be trusted to turn this noise gate on and off, manually, every time there's a gap in the guitar part'! This might strike you as a rather extreme remedy for that whole handling-noise problem, but if your job is playing tight rhythm parts through generously overdriven amps all night, you probably appreciate the peace of mind that comes from having someone else worry about your muting concerns.)

On a related note, using a guitar with a floating bridge to play this kind of stuff presents yet another problem: the tremolo springs ring out in sympathy, and you can't mute them with your hand because they're tucked away in a cavity inside the guitar's body. If you're suffering from this complaint, you'll hear something akin to a large church bell chiming in the distance whenever you cut off a loud chord. One solution is to remove the backplate from your guitar and insert some foam between the springs. Of course, this might have a very slight effect on your tone, but I think it's an invaluable aid to getting a good distorted *chug* sound out of a tremolo-equipped guitar.

There are a few other applications of the muting concept which I probably wouldn't get to mention anywhere else in this book, so I'll do it here! As a quick exercise, try playing the same note over and over again, aiming to get each note sounding a little more aggressive than its predecessor. You'll probably do this by hitting the string harder and harder until you reach a point where increasing the force of your pick attack no longer increases the volume of the note – this feels like the point where you've pushed the note as far as it can go, and you might well assume that you've found the angriest-sounding version of that note you could possibly wring out of your instrument.

In fact, you can go several notches higher on the aggression scale if you hit a couple of damped strings along with the note you actually want to hear. This adds a percussive attack to the start of the note, but it doesn't have any ill effects on the pitch of what's coming out of your amp. You're using only the initial attack of the other strings, so as long as you've damped them correctly, each additional string should provide a little extra crunch without resulting in any new unwanted notes. This is a common technique in the field of blues playing, and you can find examples of it ranging from the gentle *brraapp* sound BB King sometimes adds at the start of a long note to the high-energy sound of Stevie Ray Vaughan playing a single-note riff but picking all six strings as he does so for that raw, chaotic effect. (Use this last one with caution, by the way – it's best to get the hang of the less extreme applications first!)

Here's a simple example of this in practice. If you're using your third finger to fret an F♯ at the 14th fret on the top E-string, you could rake your pick across the D, G and B strings en route. To mute them effectively, you'll definitely need to use the palm of your picking hand, and I would recommend the added security of using the underside of your fretting hand's index finger so that you can simultaneously dampen things at the fretting end of the string. Either one of these damping methods might go wrong if used individually – for instance, if you only use your fretting hand to damp, there's a danger of getting some inappropriate 12th-fret harmonics cropping up – but combined, they're very reliable, and after a little practice you'll start instinctively adding muted rakes to any notes you want to make a little more prominent.

Muting And Bending

When you're bending a note, you'll have to be extra aware of how you're damping adjacent strings, because there's a whole new problem to negotiate – you're pushing the string you want to hear into closer proximity with the ones you're trying to keep silent. For instance, if you're playing the B string at the 12th fret and you want to bend it up a tone, wobble it for a bit and then silence the note, you'll encounter two main problems:

1 On the way up, your bending finger will come into contact with the G and D strings, and there's some chance that it will accidentally fret a note on one of these, mid-bend. This can be remedied with some judicious damping from your picking hand. You just have to bear in mind that the strings are closer together when you've bent one of them, so you have less margin for error. If in doubt, keep your damping hand close to the bridge, where the string spacing is less severely affected by bending.

2 Here's the classic howler: after a successful bend and a pleasant bit of vibrato, the player then lets the string back down to its unbent pitch and the unmistakeable sound of the open D string pops out from nowhere. This can be avoided not only by focusing on how your picking hand damps the strings but also experimenting with using different areas of your fingertip to fret the note, thus ensuring that you're not unwittingly pulling off to an open string you don't want to hear! Mainly, you should remember that your obligations to the bent note are not fulfilled until you've safely returned the string to its unbent position. Until that point, you have to be constantly aware of muting considerations. Even if you've already cut the note off, it can still come back to haunt you!

Fast Muting

Alternatively, you might be playing a stereotypical funk groove where your picking hand is strumming constant 16th notes and your fretting hand is holding an E9 shape (the one where you finger the D string at the sixth fret and barre the higher strings at the seventh, maybe adding a root note on the A string – everyone's favourite funk chord). For the full 'Theme From Shaft' effect, you need to cut off the chord at selected parts of each bar so that some 16th notes are marked only by the percussive sound of muted strings. Whenever you see this sort of rhythm part transcribed, the tablature is swarming with Xs to indicate these muted moments, and they're achieved by releasing the grip of your fretting hand.

The important factor here is the extent to which you release your grip. Your hand can continue to form

the basic chord shape, but it should relax just enough to separate the strings from the frets and cut off the ringing sound. If your fingertips actually leave the strings, that's a good indication that you've relaxed your grip a bit too much, and the resulting messy sound will leave you in no doubt that you're doing it wrong.

To get a feel for this kind of playing (and you should – it's fun!) it's best to get the chord shape ready in the muted position, start that constant strumming pattern and then give the chord some gentle squeezes whenever the fancy takes you. Try to keep track of your picking hand's rhythmic feel and not to allow yourself to become too preoccupied with the fretting hand's behaviour; the squeeze/release motion will pretty much take care of itself, so focusing on the groove and timing should be your first priority.

In the studio, a guitarist will sometimes tie a cloth around the neck, up by the nut end, and tighten it just enough to dampen the open strings. This is almost like cheating and obviously won't help you to play 'Walk This Way' or the James Bond theme, but it can really help for certain difficult guitar parts that don't rely on the use of open strings. Imagine you're going for the perfect eight-bar solo on an otherwise complete pop track. If your last ten takes were all nearly perfect but marred by a rogue E string ringing out in bar seven after your clever lick, would you really be averse to a bit of cheating?

In a situation like this, you can't exactly make your excuses and retreat for a solid day's practice (studio time is a very costly commodity, and unless you're Def Leppard, there never seems to be enough of it). I think it would be fair to say that it's worth trying anything that might help to get the job done efficiently.

Muting And Tapping

If you're partial to a little eight-finger tapping from time to time, you'll need to pay particular attention to what your open strings are doing when you're too busy to keep an eye on them! Most specialised players in this field use some sort of damping device – Jennifer Batten, for instance, uses a bizarre spring-loaded contraption built from the same materials as you'd find on the damper pads inside a piano. Anyone who's ever tried to tap on two necks at once will definitely relate to the need for such a gizmo (I'm thinking of Steve Vai's heart-shaped, triple-neck monster or Michael Angelo's left-and-right-handed double neck, or Stanley Jordan's show-stopping trick of having a second guitar on a stand so that he can play two guitars simultaneously). The problem is that each of your hands is too busy to get any muting done – there's just not enough spare flesh to go around. Whether or not you need to spend any money to dabble in this idea is debatable; tying an old sock – or, indeed, a sock of any age – around the neck works as well as anything else I've tried. If you need this kind of tapping safety gear but want to mix in some 'normal' playing featuring open strings, I would recommend buying a few hairbands, and the fluffier the better. You can easily shift a hairband from one side of the nut to the other with your fretting hand, enabling you to swap between 'on' and 'off' modes quite effortlessly. Remember, though, that hairbands lose their elasticity after a while and can't be tightened up on the fly, so don't give up on the sock idea just yet!

A variation on this problem crops up in licks like Joe Satriani's bubbly arpeggio in 'The Mystical Potato-Head Groove Thing', from the *Flying In A Blue Dream* album. Licks of this kind need to be hammered rather than picked in order to produce the full bubbly effect, and every note is on a different string to the one before it, so the muting logistics are horrendous. Joe's cheeky solution, when he plays the track live, is to bring his picking hand right around to mute the strings between the nut and his fretting hand. It might be cheating, but it works, and you have to admit that it has a certain visual appeal.

Tuning

This is a very confusing topic, but bear with me.

Let's start by looking at a bit of physics. The pitch of any note can be given in *hertz*, a measure of the number of times in which a string vibrates in a second, and this measurement doubles every time you go up an octave, so if you see 'A = 440' on a tuner, it means that a correctly tuned A note might vibrate 880, 440 or 220 times a second, depending on the octave it's in.

The ancient Greeks figured out a system of ratios

for generating a group of notes that sounded good together. This group of notes became what we now know as the major scale, and in the key of C it would look like this:

C = 264Hz – multiply by $^{9}/_{8}$ to get:
D = 297Hz – multiply by $^{10}/_{9}$ to get:
E = 330Hz – multiply by $^{16}/_{15}$ to get:
F = 352Hz – multiply by $^{9}/_{8}$ to get:
G = 396Hz – multiply by $^{10}/_{9}$ to get:
A = 440Hz – multiply by $^{9}/_{8}$ to get:
B = 495Hz – multiply by $^{16}/_{15}$ to get:
C = 528Hz

Note that this last note comprises double the frequency of the initial C, and the whole pattern then starts again to generate the notes in the next octave.

Relatively simple ratios like these tend to sound pleasing to the human ear. (Harmonics, incidentally, work in a similar way. As we'll see later on, the easiest harmonics to obtain occur at points where a string is divided into equal halves, thirds, quarters and so on.) Listed above are some notes that sound good together in the key of C. To be more specific, they constitute the *C major scale*.

Here's where the problems begin. If you decided to figure out the pitches for a similar scale in the key of D major, you would start with D = 297Hz, as established above, and apply the same series of ratios from that starting point. Here's what happens:

D = 297Hz – multiply by $^{9}/_{8}$ to get:
E = 334.1Hz – multiply by $^{10}/_{9}$ to get:
F♯ = 371.3Hz – multiply by $^{16}/_{15}$ to get:
G = 396Hz – multiply by $^{9}/_{8}$ to get:
A = 445.5Hz – multiply by $^{10}/_{9}$ to get:
B = 495Hz – multiply by $^{9}/_{8}$ to get:
C♯ = 556.9Hz – multiply by $^{16}/_{15}$ to get:
D = 594Hz

Even if you find all this mathematical stuff a little off-putting, I'm sure you'll agree that this presents a serious problem. E weighed in at 330Hz in the C major scale, but the corresponding E in the D major scale is 334.1Hz. Similarly, the A is 440Hz in the C major scale and 445.5Hz in the D major scale. So how are you supposed to tune your instrument so that it sounds good in all 12 keys when you have more than one 'correct' version of certain notes?

The solution used in Western music is the system of *equal temperament*, which divides the octave into 12 equally spaced semitones. In mathematical terms, this is achieved by multiplying your starting frequency by the 12th root of 2 (approximately 1.0595). If you do this 12 times, you'll arrive at a frequency for each of the possible semitones within an octave. These aren't necessarily the most pleasant-sounding versions of the notes, but they'll sound approximately right in any context and they enable musicians to write and play music that moves freely between various keys.

The downside of this is that it's very hard to tune up! If you try to get an open C chord perfectly in tune, you'll find that an open E chord sounds decidedly 'out', and vice versa. If you use an electronic tuner to find the ideal compromise for each note (as suggested by the equal-temperament system), all of your chords will be out of tune – but only very slightly, so you can live with the results.

All of this technical detail is there to make a basic but important point: if your tuner maintains that you're in concert pitch but a chord still doesn't sound quite right to you, you're not going mad; you're absolutely right! Your best bet is to use the tuner for guidance and then use your ears to make any fine adjustments you deem necessary to complement the key in which you're playing.

Harmonics

One popular way of tuning a guitar involves using harmonics. (If you're not sure about harmonics, don't panic – they'll be covered in greater detail later on.) You might, for instance, play the fifth-fret harmonic on the low E string and the seventh-fret harmonic on the A string. If you let the two notes ring together and adjust the pitch of one of them in very small increments, you'll hear a rhythmic 'beating' which gets slower as the two pitches converge and finally disappears altogether when they match perfectly.

This is an appealing and undemanding tuning method. Unfortunately, it uses the Greek ratios rather

than the equally tempered ones, so if you tune all six strings in this way, you'll accrue a series of tiny errors and the end results will sound out. Having said that, it's very handy for those moments when you have to change a string mid-gig. It's harder to hear pitches accurately at high volume levels, but that beating effect will be instantly recognisable.

Standardised Tuning

There's another inherent problem with tuning that's perhaps best illustrated by considering the way in which a piano is tuned. A piano sounds more in tune if its range is stretched slightly – ie if the frequency of each note is fractionally more than twice that of the same note an octave lower. Don't ask me why, that's just the way it works. (Guitarist Eric Johnson extols the virtues of first getting the G string in tune and then working your way out towards the E strings, so that the most 'correct' note is in the middle of the guitar's range.) In an orchestra, you'll find that *concert pitch* means slightly different things to different musicians – a violinist would normally tune to a slightly higher A than a tuba player, for instance. To cite one guitar-related example, Martin Taylor claims that he prefers to tune to A = 442Hz rather than A = 440Hz.

There's yet another problem in guitar terms: when you strike a guitar string, you might think that the resulting vibration affects the entire length of the string between the saddle and the fret (or nut, if it's an open string). In fact, this isn't the case. There's a little bit of string at either end that doesn't really move, which explains why you need to set the *intonation* on your guitar to make sure that it sounds in tune with itself all over the neck. The general rule is that you should compare the pitch of a fretted note at the 12th fret with the pitch of the natural harmonic in the same place. If the fretted note is sharper, the saddle needs to be moved back, further away from the neck. Conversely, if the note is flatter than the harmonic, the saddle needs to come forward. (Remember always to fit new strings to your guitar before attempting this adjustment!)

Setting the intonation tackles these problems at the bridge end of the string, but of course the nut end behaves in the same way. Many session players find that the notes on the first few frets sound a little too sharp relative to the notes elsewhere on the neck, hence the invention of the Buzz Feiten tuning system. This uses a top-secret (and consequently expensive) formula to modify the spacing between the nut and frets, and this goes some way towards remedying the problem.

Also, if you've seen Frank Gambale's signature Yamaha guitar close up, you'll have noticed that the first few frets have little V-shaped indentations. This is another attempt to combat tuning inconsistencies, and these indentations are designed to ensure that all of the common open chord shapes sound good together.

Both of these methods seem to work, but don't forget that people were playing guitar and sounding in tune long before any of this was invented, so once again the moral is to use your ears. I remember playing a session where it was proving impossible to get every chord voicing sounding in tune with the keyboards. It turned out that the solution was to move a couple of the chords onto a different group of strings.

Mechanical Difficulties

Here's another hurdle: when you hit a string firmly, it sounds slightly sharper than when you hit it softly, particularly at the start of the note (the 'attack'). This is most noticeable on the open low E string – you can almost coax an F out of it if you pick it violently enough. When you're tuning, it's important to hit the strings as hard as you would if you were actually playing. If you stroke them timidly when you tune and then launch into a hard, aggressive rendition of your riff of the moment, it will sound slightly sharp.

It's all a bit disturbing, isn't it? In the last few paragraphs, we've learned that music doesn't quite work and guitars don't quite work, either!

Not to worry. The problems and inconsistencies that we've looked at are on a very small scale, and you'll only really notice them when your ear is developed enough to know what to do about them. If this kind of stuff never worried you before, why worry about it now? I mentioned all of this purely because it's interesting and because it might make you listen a little more carefully to the precise pitching of your notes, and it will certainly increase the accuracy of your string bending if nothing else!

A few more practical tips on tuning might be appropriate at this point:

- It's far easier to tune up when your guitar sports a new set of strings. Old strings are covered with an irregular coating of rust and dead bits of fingertip, not to mention dents where they've come into contact with frets. Thus their thickness is no longer uniform all the way along their lengths, so their intonation gradually deteriorates with age.

- New strings, for all their charms, take a while to settle in. As you probably know, you can combat this by tuning them up to pitch and then stretching them heartily, pulling each string in turn away from the fretboard. However, the conventional way of doing this stretches the middle of the string more than the ends. Your best bet is to hold down the string at each fret in turn as you stretch, thus achieving a more even tension all the way along its length. (Thanks to Phil Hilborne for this one!)

- If you have a floating bridge (ie a whammy bar set up so that it can raise *and* lower the pitch of a note), tuning becomes a trickier proposition altogether. Every time you adjust the pitch of one string, the others are affected, so you have to tune each string several times before you can get the whole guitar sounding good. I find it helpful to start from the top E and work downwards rather than the other way around – the pitches of the high strings are less sensitive to small bridge movements, so you might find the whole process a little quicker.

  It's a good idea to keep depressing the bar and releasing it as you tune up. Your goal is to get the strings tuned so that they sound right after the bar has been released from the 'down' position. The combination of whammy abuse and standard string bending can leave your strings in a terrible disarray, so it's handy if you can reset their pitches simply by dabbing the whammy bar.

  The above applies even to locking systems such as the Floyd Rose. You might think that such a trem will guarantee you immunity against such problems, but the knife edges on which these bridges pivot will become blunt after a while and you'll notice the strings coming back slightly sharp after you've pulled up the bar. (One tip is to squirt a tiny amount of sewing-machine oil in there.) Every time you bend a string manually (ie with your fretting hand) you're pulling the bridge forward slightly – the equivalent of pushing down on the bar – so it's important to replicate this common motion when tuning.

  If you have a traditional, non-locking trem, you'll find that you get the most stability if you monitor the amount of times that a string is wrapped around the post of its tuning peg – the more turns you use, the more scope there is for things to go wrong. (Check out www.kinman.com for lots of *very* detailed information in this vein.) Most tuning problems are caused by friction at the nut and saddle, so reducing the breaking angle of the string as it crosses the nut can help, as can colouring in the string slots with a soft pencil – the graphite in the pencil lead will act as an effective lubricant.

Perfect Pitch

Just to round things off, I should quickly mention the tuning-related topic of perfect pitch, the ability to identify the pitch of a note just by hearing it. Perfect pitch is often thought of as something you either have or you don't, but there are courses that purport to teach you this skill. (An American by the name of David Burgess offers just such a course, in the form of a series of tapes.) I, incidentally, don't have perfect pitch. I've got a vague idea what an open E string should sound like, but this drifts out further and further if I go for a few days without playing, so I guess it's more like 'memorised pitch'. I'm actually quite glad about this – many people who know the precise pitch of every note can't bear to listen to music that's slightly sharp or flat. One of my music teachers at school was 'blessed' with perfect pitch and he used to wince perceptibly every time he played us a tape because the school tape deck ran slightly slow and consequently the music sounded wrong to him. I dread to think what he would have made of the early Van Halen albums, where the guitar and bass are often tuned to roughly a quarter-tone below E or E♭! (In their

pre-keyboard days, Eddie Van Halen and Michael Antony would simply tune to each other, rather than to concert pitch.)

A few years ago, I had a student who had taken one of these teach-yourself-perfect-pitch courses, and I was fascinated. From time to time I would fire random notes at him in an attempt to catch him out...and I never could! When I asked him how the system worked, he explained that the best analogy was to think in terms of colours. For argument's sake, he said, think of B♭ as sounding blue and D as a greenish colour.

Intrigued, I played him a Cmaj7 chord and asked him to identify *that*. He shook his head in despair, and gave up immediately.

'Can't you just home in on each note in turn and identify the separate colours?' I suggested. 'Then you could look at your list of notes and figure out what the chord is.'

'No, you don't understand,' he replied. 'All chords sound brown to me!'

In short, perfect pitch is great for certain things – I know of some singers who use it to guess whether or not it's worth trying to reach a certain high note, for instance – but it's not going to solve all of your musical problems, and a lot of professional musicians get by just fine without it. I think it's far more constructive to work on your *relative pitch* – the ability to recognise the distance between one note and the next – and the parts of this book that deal with scales and intervals will help you in this pursuit.

There is a theory, incidentally, that all babies are born with perfect pitch and most of them lose it as they come to understand more about how music works. Only when they've got rid of it can they recognise that 'Happy Birthday' is the same tune in whichever key it's played!

Timing

This is one crucial aspect of playing which I think many bedroom-bound players overlook. In order for it to make sense, a piece of music needs some kind of inner rhythmic pulse running through it, and part of your duty as a player is to feel this pulse, be it through tapping your foot in the manner of a pewter-tankard-wielding folkie, flailing wildly like a headbanger or nodding like a bassist. (Let's face it, every bass player on the face of our fair planet is prone to doing the Funky Nod from time to time. I have a bassist friend who often receives comments on his visually compelling style of nodding while he plays, and his response is always the same: he smiles proudly and announces, 'I taught the pigeons!')

When we're just listening, most of us are quite capable of nodding or tapping in time with the track – I confess that one of my most annoying personal traits is my tendency to drum along on a tabletop whenever I find myself getting particularly absorbed by the groove of a piece of music. The problem with some players is that they forget about this basic ability to feel the music as soon as they strap on their guitar. I know that playing requires all sorts of extra skills you don't need when you're merely listening, but you should remember that someone else might be listening and they won't enjoy the experience unless the groove you're providing sounds and feels right.

As an interesting aside, I once read about an ethnomusicologist who went around the world studying various forms of tribal music and who discovered that the average tempo of the music he heard corresponded to the average size and build of the tribe producing it. Basically, it turns out that Pygmy music tends to be a lot faster and more frenetic than Watussi music, because a Watussi has longer limbs which take longer to swing to and fro than the shorter limbs of his Pygmy counterparts. Each basic body type has its own intrinsic range of tempi within which dancing feels like a comfortable and natural activity.

Why do I mention this? Purely because I think it serves as an indication of just how important it is to feel a groove. If you look at a form of music from a so-called 'primitive' culture, you get the impression that it evolved out of the primary consideration that it should feel good and people should be able to enjoy dancing to it. Of course, if you went first to a Slipknot gig and then to a ballroom dance, measuring the average age of the audience and the average tempo of the music at each event, you'd probably be able to come up with some similarly deep insights.

Ultimately, you'll feel the pulse inwardly without the need for any overt physical movement, but it never

hurts to get some non-guitar-related bit of your body involved with timekeeping – the more involved you feel with the music, the better it will sound. The general objective is for at least some part of you to be feeling the basic pulse of the music, regardless of the rhythmic or technical complexity of the guitar part itself. Call it the 'backbeat', call it your 'inner groove', call it what you like, but accept that it's the most important aspect of making your playing fit, whatever the musical context.

NB: The following ideas all apply to any time signature you can think of, but for the sake of clarity I've stuck with the assumption that all of the music here comprises four beats in a bar – ie four strong, evenly spaced pulses occur in the music and then the rhythmic pattern appears to start afresh. Most popular Western music works in this way, and it's probably not surprising that an even number of beats should be such a common choice among composers. It's not a tradition that music theory forces on us; it's just something that feels normal. (I guess this must be a product of the fact that so many human bodily functions work in the same way – think of the *lub-dupp* pattern of a heartbeat, the left-right alternation of walking, the in-out cycle of breathing or indeed the in-out cycle involved in that other most fundamental of human activities, the one that most pop lyrics deal with...)

The Human Touch

The best way of honing your timing skills is, not surprisingly, to have some sort of external timekeeping device running whenever you play. This might be a metronome, but I would also make a strong case for playing along with CDs, either in the form of backing tracks – more of which are currently available on the market than ever before – or in the form of recordings by your favourite artists. Not only will this give you an accurate rhythmic pulse provided by professionals for your practising delectation but you'll also get some hints regarding the feel of the music – you'll learn more about achieving a lazy groove by jamming along with a Bob Marley track than you ever could with only the cold, emotionless ticking of a metronome to keep you company. Likewise, I think it's important to make music with other people in real time – whenever the opportunity presents itself, you should indulge in lots of jamming. Working with other people to achieve a collective groove is a vital skill, and it makes you far more useful as a musician than pure solo performing. Unlike a metronome, real people speed up during the exciting parts, slow down when they're fatigued and so on. A 'human' groove has slightly different qualities to a mechanical one, and although these qualities might be technically less perfect than what a click track gives you, sometimes they add the human touch that the music really needs.

Just to outline the value of the human touch, take a moment to think about the evolution of sequenced and computer-based music. When the first drum machines came out, their main selling point (apart from the appeal of not having to pay a real drummer for his services!) was that they played in perfect time – whatever you programmed into one could be *quantised* so that each event occurred in the mathematically correct place. This certainly made an important contribution to the development of certain fields of music – without the invention of Roland drum machines like the 808 or 909, for instance, today's dance music would have turned out very differently – but no one was really fooled into thinking that they sounded anything like real drummers.

In truth, it's often the little inaccuracies that make a track feel good, and this has been reflected in the way in which the technology has evolved. In the 1980s, for instance, I remember buying a drum machine that boasted a 'Human Feel' function. The idea was that I could program a drum pattern to neuro-surgical levels of precision and then tell the machine to introduce small errors, like making the snare drum fall slightly later than it strictly should or un-quantising the hi-hat pattern by a certain percentage. This might not sound like such a great idea – I doubt that the public would respond well to an invention like 'the human car', with brakes that are guaranteed to work only 95 per cent of the time to provide that more exciting driving experience – but in the field of music, it seems to work. (This is probably why the demo tunes found on pre-programmed on home keyboards tend to sound so lame – everything is just that little bit too perfect to be believable.)

A lot of modern sequencing software takes this

idea one step further. For instance, you might program a quantised drum pattern and then drag an audio sample of a groove you like on top of the MIDI part. The computer will then re-adjust its quantising grid so that, if the 'groove template' you've picked is a Steve Gadd drum loop, where beats 2 and 4 are slightly late, all of the events programmed to fall on beats 2 and 4 will also be slightly late. I'm not sure which amazes me more, the fact that such technological feats can be accomplished at all or the irony of so much programming and technological knowhow going into achieving an effect that we puny carbon-based life forms have been successfully creating without any technological assistance at all for a good few millennia!

Another example is the rise of the sampler in modern music. Arguably, the sampler is revolutionising the development of modern popular music as dramatically as the invention of the electric guitar did a few decades ago. I think that the important point to bear in mind is that the sampler was designed as a means of recreating the *sound* of another instrument – if you wanted it to sound like a drum kit, you could sample separate recordings of each part of a kit, assign them to different MIDI notes and then program away. Of course, the dance community quickly discovered the benefits of sampling whole drum loops rather than individual drums. If you have a whole loop to work with, you can retain more of the original feel of the groove, and the end result will sound more human. (It also lets you work with larger units of information, which saves a lot of time. I submit that a lot of drum and bass tracks would never have been completed if their programmers had been forced to program everything drum by drum!)

Just for the record, what I'm advocating here is very different from telling you it's OK to play out of time. All I'm really suggesting is that an experienced musician knows exactly where to play a note to achieve maximum effect, and where he or she chooses to mark a certain eighth note might differ slightly from where a computer might have put the same note. It's still of quintessential importance that your playing sounds in time; it's just that the human ear is quite fussy enough to determine that for itself, without having to ask a machine for advice.

I once had to record a bass part in a studio based around a hard-disk recording system. Basically, all you had to do on this machine was tell it the tempo of the piece you were recording and it would very helpfully let you locate points like 'bar 5, beat 2' rather than describe the same moment in terms of minutes, seconds or inches of tape, as most counters do. Thus it was that the producer reliably informed me that my first note in bar 5 was $^{5}/_{96}$ of a beat late, which concerned him greatly. After a little discussion on whether or not this timing discrepancy was acceptable, we decided to look at the first notes in some other bars of the music and discovered a succession of 'lateness' statistics along the lines of $^{4}/_{96}$, $^{5}/_{96}$, $^{5}/_{96}$, $^{4}/_{96}$, $^{5}/_{96}$, $^{6}/_{96}$, $^{5}/_{96}$, etc, and ultimately decided that there had to be some reason for all of these notes being late by roughly the same amount. We even tried moving the notes forward digitally so that they all fell exactly on the beat but concluded that the results sounded colder, more sterile and, oddly enough, less in time than they had done in the first place.

I think that this illustrates the difference between the human touch and plain bad timing. If the lateness chart for each note had read '$^{2}/_{96}$, $^{4}/_{96}$, $^{-10}/_{96}$, $^{21}/_{96}$, $^{5}/_{96}$', I would surely have been guilty of playing out of time, because there's no consistency in those figures and you get the overwhelming impression that such discrepancies are symptoms of sloppiness rather than loyalty to the groove.

Using Metronomes

Perhaps my last points sound unfairly biased against metronomes. I can't over-emphasise the importance of playing with other people, but to redress the balance a bit I can offer you some suggestions on how to use a metronome most effectively.

When teaching technique at guitar schools, I have sometimes spent eight hours solid showing different groups of students how to play the same exercises at various tempi. Whenever I stop playing to make a verbal point, I find that I have to turn off the metronome for the general good of my mental health. That constant bleeping can get very tiring very quickly!

(It can also give rise to some embarrassing situations, such as the time I found myself being

questioned at an airport by a customs official who was understandably curious about why an ominous ticking sound was emanating from my hand luggage. It was, of course, my digital metronome, which had somehow contrived to turn itself on inside my bag and was pumping out 98bpm for the idle curiosity of my fellow passengers.)

However, as soon as I start playing, the metronome ceases to be annoying. When you're playing perfectly in sync with a click track, it virtually disappears. Certainly, in some studio situations, you might have to provide a grooving guitar part with only a click track for companionship, so it's worth checking your ability to stay in time with just such a minimalist backing.

Here's a funny thing: most people who use a metronome to practise assume that they should be measuring their progress in terms of how fast they can play certain things. In fact, there are certain occasions when the opposite is true. Think of those impossibly slow, menacing-sounding grooves you find on Pantera albums. If you try playing along to one of these, you'll soon find out how much more difficult it can be to preserve the momentum of a piece of music at 40bpm than at a more familiar tempo like 98bpm. Try firing up your metronome at a sensible speed – perhaps somewhere in the 80-120bpm range – and playing a simple rhythm part along with it as precisely as you can. Once you've developed a natural feel for the tempo, the next step is to slow down the metronome in small increments until you find that limit beyond which the tempo no longer makes sense. The skill of maintaining a constant tempo hinges largely on your ability to guess when the next click is going to happen and correcting yourself whenever one of your guesses fails to match up with the truth provided by the metronome. You'll discover that, as the clicks get further and further apart, the margin for error gets a lot wider. Therein lies the challenge...

As a slightly easier variation on the above, think of any exercise you can play comfortably at 120bpm. (The actual difficulty of the exercise is not an issue here, as long as it's something you know how to play.) If you play it with the metronome at 120bpm, the clicks are marking beats 1, 2, 3 and 4 of the bar. If you try the same exercise at the same speed but with the metronome set to 60bpm, the clicks will mark only beats 1 and 3 of each bar. You should remember the basic tempo (it's the same as it was before), but now you have to remember that tempo for twice as long – you get only two prompts per bar as opposed to the four you had previously. Taking the idea to an ugly yet logical conclusion, you could try setting the thing to 30bpm and seeing how well you could preserve the tempo.

Oh, the fun you can have with a metronome! OK, now back to my earlier bass-playing anecdote, the one about the note that was $^{5}/_{96}$ of a beat late. If you were intrigued by the issues raised therein, you might like to try the following experiment. First, think of a typical Motown guitar part – you know, that simple-yet-effective trick of only playing on beats 2 and 4, striking chords on the higher strings and immediately cutting them dead. To keep things nice and simple, let's say you're going to limit yourself to playing one stab on A for beat 2 and one stab on D for beat 4. Now reach for your trusty metronome, set it to a moderate speed and play the part for a few bars, trying to lock in with the tempo and play the chords as precisely and mechanically as you possibly can.

Now for the 'human' part. Once you've become accustomed to the groove, ask yourself how it feels. Does it have a laid-back, relaxing kind of vibe or is it coming across as more of a driving groove? How do you feel about the tempo? Would you prefer it if it had a little more energy in it? Does it sound wooden or bored? Does it sound like you'd rather be playing something else? Bearing all of this in mind, try to find ways of altering the feel of the part without changing the speed of the click or drifting out of time. Try to make it sound impatient, as if it's pressing forward, then see if you can capture a sleepier, lazier feel. It's such a basic guitar part. What can you change about the way you're playing it to vary the mood it conveys?

If you tried the above routine (and I really would urge you to try it, even if it sounds a little odd), what were your findings? The most obvious way of changing the feel of your playing is probably by adopting the approach of playing everything a little louder or quieter, unless of course you were drawn to the slightly dishonest tactic of adding more notes within the part!

However, there's another idea to explore here: how exactly are you judging the chord's 'in time-ness' with the click? However staccato you play it – ie however sharply you cut off the notes – you still can't play a whole chord instantaneously – not with a pick, anyway! If you're using downstrokes, it's an inherent factor of strumming that the low notes will occur slightly earlier than the higher ones. There's not a lot you can do about this, but it does invite the question, Which note in the chord are you trying to get in time? At this point, you might want to put the metronome back on and play the groove again. This time, try to focus on getting the very first note of the chord in time with the click, then repeat the experiment, this time trying to get the last note of each chord to line up with the click.

There you have two very distinct feels, the first sounding a tad sluggish, the second perhaps a little over-zealous, and yet if you record yourself playing an example of each groove and then listen back, you'll note that neither of them are out of time, as such. Is one version more 'right' than the other? Does the truth lie somewhere between the two? What happens if you try the same thing with a faster or slower strumming speed?

The above is a bizarre but hopefully interesting illustration of an idea you might hear described as 'playing ahead of (or behind) the beat'. It turns out that there are lots of different ways of playing in time, be it with chords or single notes, and each contributes something different to the overall feel of the music you're playing. For instance, listen to the Miles Davis album *Kind Of Blue* (in fact, buy it – even in the unlikely event of you hating it, it'll still look good on your coffee table, conveying an aura of culture and sophistication to all who see it there). The timing in those trumpet solos tends to sound remarkably lazy – some of the notes are so late that they almost sound wrong – but the overall impression you get is that the guy playing the solo must have been one cool cat who knew exactly what he was doing and who played the notes late only because that's where he felt they should go, not because of any shortcoming in his playing skills.

At the other end of the lethargy spectrum, you might want to check out the guitar playing on some ska records. What you'll probably find here is the earlier exercise based on the Motown style of playing speeded up considerably and with a certain impish impatience about the timing. The chordal stabs occur as early as possible, as if constantly trying to speed up, but never actually managing to do so, and the result is an effective, high-energy feel.

Swing

Join me now on another foray into the unquantifiable. This time, our chosen topic is swing feel.

Swing? What's that, then? I've heard it defined by jazz platitudes along the lines of 'If you don't know what it is, you ain't got it'. However, I've never found that approach to be particularly useful – after all, it's possible for someone to be perfectly comfortable with the idea of swing feel without necessarily ever needing to know a name for it.

In an attempt to be more helpful, I submit for your consideration the following brief Status Quo-based explanation of swing: 'Rockin' All Over The World' doesn't have it; 'Whatever You Want', however, does.

If you had to describe the grooves of those two songs to someone who had never heard them before, you would probably end up trying to scat-sing the riffs, and of course 'Rockin' All Over The World' goes 'Na na na na na na na na', whereas 'Whatever You Want' is more of a 'DAT da-DAT da-DAT da-DA-ga-da' kind of affair. (Excuse the onomatopoeia – it might sound a little silly, but it works, and it's kind of fun, too. Arguably, one of the most reliable ways of evaluating a riff that you've been working on is to sing it in a *Beavis And Butthead* voice. If it still sounds good, you're onto a winner!) In other words, the second track's swing feel is what gives it that bouncing quality. The track that doesn't swing doesn't necessarily feel any worse, but its rhythmic mood comes across as more mathematical, more precise.

Here's a boring version of the same idea: swing feel deals with the gaps *between* the main beats. Imagine counting along with your metronome, uttering 'ONE and TWO and THREE and FOUR and...' in such a way that the numbers fall on the beats, and the *and*s occur in between. Each syllable represents an eighth note, in theory terms, and as

long as your *and*s are falling halfway between the main beats, all of your eighth notes will be equal in length and you'll have yourself a 'straight' feel. If you then try to count 'ONE and a TWO and a THREE and a FOUR and a...', once again keeping all of the syllables evenly spaced, you'll be subdividing each beat into three equal parts instead of two, marking what is known as an *eighth-note triplet* feel. Finally, count along in exactly the same rhythm but don't actually vocalise the *and*s; just think them or mouth them silently. Where the remaining syllables fall outline the simplest technical definition of a swing feel. By counting along in this way, the main beats seem to be accentuated and the *and*s consequently sound somehow less important than they did during the counting for the 'straight' feel.

This swing feel tends to add liveliness to a groove. I say that like it's a good thing, but of course that doesn't mean it's always appropriate. Understanding how swing works can be a huge asset to your playing, but only if you use it when it's right for the music. If you attempted a swing interpretation of a classic straight riff like 'Since You've Been Gone', 'Sunshine Of Your Love' or indeed 'Jump', the results would sound trite and perhaps a little comical. Conversely, trying to squeeze Brian May's swing-based riff from 'Tie Your Mother Down' into the constraints of a straight eighth note feel would be a doomed undertaking. It just doesn't sound right that way – although, of course, you're always welcome to try it!

The fun part is that you can vary the actual *amount* of swing when you play any given guitar part. This is another grey area, along the lines of playing behind the beat. You might be familiar with those slow, lazy hip-hop grooves that contain a barely perceptible element of swing, and if you listen to a lot of bebop you'll have heard quite a lot of tunes in which the swing element is far more pronounced. Whatever the case, I'm sure that your own personal concept of swing is a product of your listening diet – whenever you have to decide if something sounds right or not, you compare it to other music you've heard.

As a more specific example, think of the classic 'Texan shuffle' feel as heard on such Stevie Ray Vaughan tracks as 'Pride And Joy'. Rhythm playing of this kind works best when the *and*s are falling as late as possible, so if you're trying to improve your feel with a view to playing this style, one of your main concerns should be to look at exactly *how much* it swings. Videos of Stevie's playing suggest that he tackled these parts using a circular wrist motion – it looks a little like he's winding up a large reel of fishing line and the thing is getting slightly stuck each time it completes a full turn. I can't personally get on with this style of playing, but I find that you can achieve similar results by moving your picking hand up and down in the time-honoured manner, the key being to give more weight to the downstrokes. If you let your hand rest in the 'down' position for a bit longer, you can then throw in the following upstroke right at the last minute, using a snapping motion of the wrist, and still be back in time for the next main beat. By varying the intensity of this effect, you should be able to achieve a number of different feels, one of which might be the one you were aiming for in the first place!

One last pointer on this topic: you should always aim to get your downstrokes in time with the main beats, regardless of how horribly wrong the upstrokes might go!

More On Metronomes

Just when you thought I'd recovered from my urge to pepper every sentence with the word *metronome*, I now suggest the following little exercise as a new way of using said ticking device. Try using the click as an offbeat so that the clicks represent the *and*s between the main beats rather than the beats themselves. This can be tricky at first, but if you fire up the metronome and start off by getting into the routine of saying 'and' to coincide with each click, you can add '1, 2, 3, 4' in the gaps. You've now got the general idea – all you have to do is convince yourself that the beats are falling where you say they are, not where the clicks occur! One way to help in this might be to say the numbers parts louder than the *and*s. This method ultimately makes you pay more attention to the finer details of swing feel, which can only be a good thing.

How To Practise

This might sound like a rather strange heading, but bear with me. I've seen a lot of players waste their practice time because, although they were very aware that they *should* practise, they were unsure of exactly *what* to practise, how to go about it or even what they expected to gain from it.

There's obviously no single practice routine that works for everyone – every player has different aptitudes, tastes, goals and, of course, a different amount of free practice time in a week – so it's important to plan a system that works for your own requirements. To some extent, I'll have to trust you to figure that one out on your own, but what follows are some general thoughts on factors you might want to consider when planning your practice routine.

Speed

When students watch me play, they sometimes remark, 'I wish I could play that many notes, but my fingers will never be able to move as fast as that!' Of course, seeing how many notes you can cram into a bar isn't exactly the most musical of goals, but it has its place. Everyone occasionally wants to play something that their technique can't quite handle and assumes that it's because their fingers can't move quickly enough.

In fact, a fast technical player isn't moving his fingers any quicker than anyone else's; he's just moving them less. The process of practising a lick over and over again first teaches your hands which movements to make, then ensures that they're happening in the right order and finally focuses on streamlining each movement in the quest for greater efficiency. If you've been working on a new lick or technique and you've got to the point at which you can do it successfully most of the time but it still doesn't quite feel natural, the chances are that your hands are doing the right things but are also throwing in a few unnecessary movements.

To see what I mean, try to locate some video footage of a player with a famously good technique – someone like Frank Gambale, perhaps – and watch how their hands are moving. You'll notice that the fingers on their fretting hand are constantly poised just above the strings so that, whenever they're expected to fret a note, they can do so without having to move their fingers more than a few millimetres. This obviously uses up fewer calories than a less efficient fretting-hand position, and it's also more immediate. There will always be a slight gap between the moment your brain tells your fingers to play a note and the moment the note actually comes out of your amp. If you can keep the required movement to a minimum, you'll also be keeping this delay to a minimum, and your reward will be cleaner technique and more accurate timing.

Similar principles apply to your picking hand. A good, fast alternate-picking hand isn't moving any faster than a poor, sloppy-sounding one, but it *is* moving shorter distances and changing the direction of its movement more times per second. Once again, your hand's goal should be to reduce and refine each part of the picking motion until every millimetre of its actual movement plays an active part in the production of notes. Anything surplus to this is a waste of time and energy.

If you try out this approach for yourself, analyse the way in which you pick and fret notes and then prune away any excess movement, you might well find the end result somewhat lacking in volume or conviction. Perhaps it's harder to get a big-sounding note than it was when you played it the less efficient way. You should think of this as a temporary setback; the more times your hands go through the motions of playing an 'efficient' note, the more confident they become, and soon you'll find that you can channel the same amount of energy into a smaller arc of movement.

Think of Bruce Lee's famous 'one-inch punch'. The guy could knock you across the room without moving his hand more than a couple of centimetres. I'm not a huge advocate of hitting people, but this at least represents a good example of someone directing a lot of energy into an almost imperceptibly small and, therefore, very fast movement. What I'm suggesting is that the same basic principle works on a musical instrument, and the results are a lot more pleasant. If you master this principle on guitar, people will come to see you play and maybe even give you some money. If you master it in Bruce Lee's field, people are far more likely to run away.

Incidentally, I once read some more detailed parallels between kung fu and guitar playing in an

interview with Buckethead. This eccentric player, who has the stage persona of a demented robot with an elastic guitar strap, at one point played for Guns N' Roses, but in strict guitar circles he's probably best known for his absurdly fast, perfectly executed chromatic licks, which bear more resemblance to mobile ringtones or vintage computer-game sound effects than they do to regular guitar playing. He's also a keen martial artist and claims that mastering certain kung fu concepts helped him to locate the weak points in his guitar-playing technique and remedy them efficiently.

I don't propose to dwell on this whole martial arts thing for very long, because I don't know that much about it, but I will tell you that I once shared a flat with a keen practitioner of ninjitsu, and he told me that one of the key concepts in this particularly nasty art form is that you should 'forget to remember, remember to forget'. Now, this sounds something like the title of a confusing Bond film, I have to admit, but I think that the point he was trying to make was that whatever you've learned becomes truly useful to you only once it has become second nature. You can enjoy the full benefits of having an efficient picking-hand position, for instance, only when you've been doing it long enough to adopt said position automatically – by default, if you like. If you find that your hand lapses into old habits as soon as you turn your attention away from it for a moment, you still haven't fully assimilated the correct technique into the way you play and you should keep working on it until you reach a point at which it's completely instinctive. The sooner you learn the right way of doing something, the sooner you won't have to think about it any more.

One way of telling if you're on the right track is by asking yourself how effortless your playing feels. I think sometimes you have to force yourself to relax when playing, especially if you're working on something particularly challenging or unfamiliar. I've seen students go red in the face and literally break into a sweat after as little as ten seconds of trying to play something that involves strict alternate picking. This happens because they're keen to get the technique right, and they're telling themselves that what they're attempting is difficult – so difficult, in fact, that they're probably going to get it wrong. Consequently, they get so worried about messing up that they can't concentrate on the actual playing side of things.

Sometimes it helps to remind yourself that everything is possible, given time, and that practice is not all about punishing yourself. There's nothing quite as counter-productive as getting angry with yourself when a lick keeps going wrong – this can only serve to distract you. It's much better to take a break from it and then, when you come back to the guitar, keep playing the lick – or small portions of the lick – at a speed you can manage comfortably. There's no rush; in the long run, it's better for you to get the basics down properly at a slow speed so that you can be sure you're practising the right things. The rest comes with time.

My favourite adage on the subject would have to be this gem:

Speed is a by-product of accuracy

That says it all, really. If you practise an accurate, efficient technique, you'll soon find that fast passages don't seem so daunting. I know everyone's encountered this kind of advice before, but so many of us just don't want to hear it; it has the same irritating benevolence about it as maternal naggings like 'You really shouldn't do that – you know it's bad for you' and 'Are you *sure* you're eating properly?'. However, it really *is* true, and it really *does* apply to you. Take things at a sensible pace, and don't lie to yourself about how quickly you're improving by forcing up the metronome speed before you're ready.

Playing Without Looking

Right, I think we can leave the issue of speed for a while now. Another thing to consider in your quest for effortlessness would be this: how dependent are you on looking at what you play? Watching your hands as they play can be very good for assessing your technique, but sometimes you might want to see if you can remember a scale or chord shape without looking at your fingers.

Here's another analogy. Many years ago, I worked for a year in an office, where my job basically entailed

sitting in front of a computer for eight long hours a day, inputting dates and addresses, while the more experienced members of the office team would go off on meetings and other similarly glamorous-sounding engagements. Now, it might have started as a charitable attempt to keep my poor mind occupied, or it might have been a desperate bid to boost my productivity (which, I freely admit, was unremarkable), but one way or another a couple of the secretaries took it upon themselves to teach me the 'proper' way to type – ie the way that involves using more than two index fingers.

The one thing I remember them telling me time and time again was, 'You shouldn't look at the keyboard when you type, you should look at the screen. How are you going to learn to feel where the letters are if you keep looking at them?' I'm ashamed to admit that I never paid much heed to their advice, and even now, as I sweat over a hot laptop to bring you this book, I'm looking at the keys a good 30 per cent of the time. However, I realise now that they were right – it really would have been better to have learned to type using the method they suggested.

There are all sorts of reasons why you should work on your ability to play guitar without looking, quite aside from the potential for facetious scenarios involving power-cuts and the like. For instance, you might aspire to be in a band where you get to sing and play at the same time. Indeed, you might join a band purely to play guitar and then get coerced into singing anyway! Even if you're not vocally inclined, you'll be a much more valuable bandmember if you can maintain eye contact with other musicians so that, if the singer eggs you on to extend your solo, you'll know about it! Similarly, if someone is trying to bring down the overall volume level of the band, introduce a spontaneous key change or get everyone to play the next chorus in a double-time feel, you'll know about that, too. Playing with other musicians involves a lot of unspoken communication, and if you spend the whole gig hunched over your guitar neck staring intently at the frets, you'll be remembered as the selfish guitar player who didn't pay any attention to what was going on around him, the audience will enjoy it less and the rest of the band will be frustrated.

If your chosen field of music involves any sight-reading, you'll be spending a lot of your time staring at a chart on a music stand. The moment you look away to sneak a furtive peek at the fretboard, you're running the risk of losing your place on the page, so it's particularly important that you can execute some basic guitar functions without looking at your fingers.

(With regard to that whole losing-your-place-on-the-page thing, there's a school of orchestral humour that revolves around the plight of the triangle player who only plays one note all night but has to sight-read hundreds and hundreds of blank bars just to be sure that he plays his one note at just the right moment. In my experience, there's absolutely nothing funny about losing your place in the music when people are watching – everyone else is too busy playing to offer you any help in getting back on track, and however much you concentrate on what the other players are doing, the one thing you're not going to hear is the guitar part that's written out in front of you because, let's face it, you're not playing it. You're lost, remember?)

Oddly enough, I think that one highly effective way of practising sight-reading without looking is by watching TV at the same time. This won't work if you're trying to conquer some particularly challenging new concept, but a bit of absent-minded noodling in front of the box can give your playing a nice, laid-back workout and is relatively painless (I understand that Jeff Beck actually comes up with a lot of his ideas in this way). One benefit of doing this from time to time is that your senses are being fed just enough information to stop you from getting bored and putting down the guitar, so it's a good way of practising tedious stuff that requires constant repetition but isn't really exciting enough to hold your attention all on its own.

IMPORTANT! When playing in front of the TV, it's good to be relaxed, but try to ensure that you're sitting fairly upright and that your guitar is in a natural playing position or your wrists will end up at the wrong angle, you'll be too engrossed to notice and before you know it you'll be asking a doctor why you seem to have acquired tendonitis. (I'm told that Vito Bratta, the guitarist from White Lion, actually snapped a tendon in his hand by practising while slumped on a sofa, forcing his wrist into an uncomfortable position. If it can happen to a great player like that, it can happen to anyone.)

Dynamics

This is another aspect of playing to think about. Anything that's worth practising is worth practising at various dynamic levels. In particular, you should be aware of how loud you can play a note, how softly you can play it and also the mid-point between the two, which should be your default setting. (Think about it: if you're hitting your notes moderately firmly, you can bring the level of your playing up *or* down, so you have the maximum freedom of expression.)

There are many ways of exploring dynamics in your playing, and a good guideline when considering these matters would be to use human speech as a parallel. Picture this Bosch-like vision of the afterlife: your allotted fate is being made to listen to someone reading the phone book out loud for all eternity and, as a little ironic touch, you've been given the choice of either Billy Connolly or John Major as your reader. (It's unlikely, I admit, but work with me here!) Whom would you pick?

It's a chilling scenario, I know, but if we really had to make the choice, most of us would probably plump for the animated Glaswegian comedian rather than the sombre political figure. We'd be working on the reasonable assumption that hearing him reel off dialling codes would somehow sound more interesting, and thus in theory it would take longer for the tedium of that never-ending string of random digits to become truly unbearable.

The difference is, of course, in the way he tells 'em. Someone like a comedian or an actor will use a lot of different vocal inflections, varying the pitch and accent of each syllable, thus making their speech patterns more compelling for the listener.

The reason I picked the phone book as an example is this: it's possible to play guitar perfectly in time, without making any mistakes, and still sound like all you're doing is generating notes in no particular order, much as the phone book churns out seemingly random numbers. (10 digits, 12 notes – OK, so it's not a perfect analogy, but you get my point.) To make your playing sounds like it actually *means* something, you have to group your notes intelligently, which means that some notes should sound more important than others. These are the ones you should play slightly harder than the rest in order to accentuate them.

Accentuating certain notes can make your playing sound a lot more musical, so naturally it's something you should consider incorporating into your practice routine. If you have an exercise featuring lots of 16th notes in a row, you could try playing the first note in each group of four with an accent to give it more rhythmic interest and to make it sound like you've thought about the notes and made some attempt to group them into idea-sized packages rather than just played them one by one. Once you start thinking like this in your practice routine, the results will start to show in your improvising.

Incidentally, a lot of poetry works in the same way. Think of that timeless classic that starts 'There once was a man from Nantucket'. If you read the line out loud, the syllables *once*, *man* and *tuck* should naturally come out a little more prominently than the others, and the effect is that the words have more of a groove to them. If you read the same line again, this time making an effort not to stress any syllables, the results will have a robotic feel, giving the impression that you don't have any interest in the subject matter. Translating this back into musical terms, hopefully you'll agree that it's a bad idea to sound as if you're not interested in what you're playing.

At the other end of the dynamic spectrum to accented notes are 'ghost notes'. Sometimes, you'll find that the key to making a guitar part work is in making selected notes *less* prominent rather than more so – for instance, you might be working on a funky single-note part and find that one or two notes sound a bit too obvious. Maybe you've tried removing the notes altogether and found that the part doesn't sound complete without them. The solution would seem to be a compromise where you sort of play the notes – the musical equivalent of muttering them under your breath. Playing certain notes a little quieter, maybe even muting them lightly to make their pitches slightly less obvious, can effectively push them into the background. I think you can make the most progress in this area by working on it when playing along with backing tracks or, indeed, a band – somehow the clicking of a metronome isn't the most inspiring of contexts when you're trying to decide if a note feels right or not.

So far, I've dealt with dynamics on a note-by-note

basis, but there's another area of dynamics to consider, too: building the intensity of a passage by gradually increasing the volume as you play. This is an effect you'll find represented in written music as a *crescendo*, which is often denoted by a hairpin symbol opening out from left to right. Try picking one note over and over again in a consistent eighth-note rhythm, starting with your quietest possible pick attack and gradually building up to your loudest. Can you maintain that 'building' effect over, say, two bars? How about 16 bars? In short, how many gears can you play in, and how smoothly can you change between them? This is a much-overlooked issue for many guitarists, which is a shame because a long, gradual crescendo can create some very dramatic effects in a piece of music. Similarly, it's worth investigating the same idea reversed – ie the *decrescendo*, which is often denoted by a hairpin pointing the other way and creates a fading-out effect.

(Just to milk this concept to the utmost, it also applies on an even larger scale. If your band has to play a two-hour live set, you should try to arrange the songs in such a way that the dynamics of the whole show are interesting. Typically, audiences want the quiet lull to fall somewhere in the middle of the set, and they tend to appreciate the fireworks more if they occur towards the end. Most professional bands spend a lot of time over planning their set lists; they know that the songs will come across a lot better if they're all arranged in the right order.)

If you habitually play with a lot of distortion, you might have dismissed the idea of dynamics as something that somehow doesn't apply to you. Certainly, it's true that using a lot of overdrive can compress your dynamic range, and you might well find that your quietest and loudest notes come out at roughly the same volume. However, I would urge you to compare the sound of these notes – you'll find that the tone changes as you hit a note progressively harder. The harder the pick attack, the more top end the note has and so the more 'cutting' it sounds. In short, the dynamics you put into your playing still make a difference, even if the actual loudness of your notes doesn't seem to be changing that much.

Here's another avenue for exploration: it's worth finding out how loud you can get your legato (check out *Creative Guitar 2* for a further explanation on this style of playing) technique and then trying to fine-tune the level of your picked notes so that their dynamic range matches that of your hammer-ons and pull-offs. This will vary depending on how much gain and overdrive you use – it's a lot harder to find that balance when you're using a clean tone! You probably wouldn't want to play that way all the time, but it's still a handy effect to have at your disposal and it can add a certain fluidity to your playing. (Check out Allan Holdsworth's technique to hear this approach taken to breath-taking extremes. If you listen to any of his solos, you'll find that it's virtually impossible to tell which notes are picked and which ones are hammered.)

After all that technical stuff, I think I should lay the topic of practice to rest with a general point: make sure you reward yourself for all that work you put into improving your playing. After an intensive workout spent focusing on things you can't quite play yet, it's important to remind yourself of how much enjoyment you can get from the stuff you find easy. Making music is supposed to be fun, and if you find that your pursuit of a perfect technique is making you unhappy, you're probably spending a disproportionate amount of your time dwelling on that one aspect of playing. It's very important to find a good balance. Remember that picking exercises and such are simply a means to an end. If you reach a point at which picking up a guitar starts to feel like daily punishment, something has clearly gone wrong. On the other hand, if all you're interested in is the fun side of things, your playing might stagnate and stop improving altogether.

So what's the moral here? Work hard, play hard, I guess.

Finger Independence

How many of us can honestly say that we make full use of all four left-hand fingers? I think that the little finger gets overlooked by many players, partially because you only need three fingers to play the standard vocabulary of pentatonic-based blues and rock licks and partially because it looks so scrawny and pathetic next to the others that it's hard to take the thing seriously! However, I'm sure everyone

realises how much better their technique would be if only they could get that fourth finger working as well as its siblings.

Robben Ford used to worry about this, and he decided years ago that he would force himself to use his little finger as much as possible in the hope that it would catch up with the others. If you watch the man playing live these days, you'll note that a huge percentage of the notes he plays are fretted with either his first or his fourth finger – he worked so hard at improving the mobility of his pinky that he practically forgot how to use the fingers in the middle! You might argue that he didn't really gain that much from this process, which basically replaced two perfectly good digits with a single, shorter one, but the story at least serves to show you how much more useful your little finger could be if you trained it correctly.

Watching Gary Moore's playing raises another interesting issue. Gary has, amongst other things, a very polished technique – he tackled the guitar parts on Andrew Lloyd Webber's *Variations*, and the heavy-metal albums he made in the 1980s were chock-full of fast-picked scalar runs that clearly required the use of all four fretting-hand fingers. On the other hand, I recently saw him play a more blues-orientated show in which the emphasis was on pentatonic-based licks, and he was using his index and middle fingers almost exclusively, occasionally adding his ring finger as if it was merely a spare. He didn't use his little finger once all night.

Was Gary being inconsistent? Why would he spend decades developing a perfect four-finger fretting technique only to abandon it? I think the lesson here is keep your approach to fingering flexible so that you can use whichever approach best complements a particular style of playing. If you listen to an album like *Still Got The Blues*, you'll be struck by how huge the notes sound. Gary favours heavy-gauge strings and relatively high action, as do most players if they seek a fat, bluesy tone. String-bending can be painful on a guitar set up in this way, and there's an increased risk of your hammered notes not achieving the required volume, so I suppose Gary is simply using the fingers that are strong enough to perform reliably and produce the most convincing tone. If he had to play a passage more along the lines of 'Flight Of The Bumblebee', he would no doubt revert to using all four fingers on his fretting hand.

There's a mathematical way of approaching finger independence. Imagine using your fingertips to drum on a tabletop. You should be able to get a 'drum roll' of four notes in rapid succession. I guarantee that the quickest drum roll you can get will be the one where your fingers land on the table in the order 1–2–3–4, or possibly the reverse. Wouldn't it be good if you could get the same speed when you moved your fingers in a different order? I'm sure you can see how this could benefit your fretting technique, and it's an exercise that you can practise without your instrument. You could use your right forearm as a substitute guitar neck and go through the motions of hammering various finger combinations. If you spent five minutes a day waiting for a bus, this might be one way of spending them profitably. (As a bonus, everyone else in the queue will be puzzled or frightened by your apparent compulsive-finger disorder, and if the bus ends up with one unoccupied seat, it'll probably be the one next to yours! Ah, luxury...)

If you spent your school maths lessons at home trying to learn Zappa tunes (as I did), you might appreciate the following list of permutations:

1–2–3–4	2–3–4–1	3–4–1–2	4–1–2–3
1–2–4–3	2–4–3–1	4–3–1–2	3–1–2–4
1–3–2–4	3–2–4–1	2–4–1–3	4–1–3–2
1–3–4–2	3–4–2–1	4–2–1–3	2–1–3–4
1–4–2–3	4–2–3–1	2–3–1–4	3–1–4–2
1–4–3–2	4–3–2–1	3–2–1–4	2–1–4–3

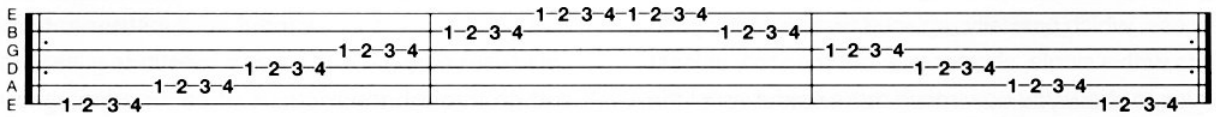
Above is a complete list of every conceivable order in which you could play that basic 1–2–3–4 combination. If it looks like a lot of work, pick any row and read across it. The four combinations you see are actually the same thing, starting from different places. Thus the six patterns in the far-left column cover all the basic possibilities and the other rows indicate the variations you can get from each by treating a different finger as your starting point.

Here are a few exercises to get you into the spirit of things. I've listed only the tab here, not bothering

with the musical notation, because let's face it, most of these sound pretty horrible, and after all they're only meant as exercises to improve the path of communication between your brain and your fingers.

Example 2.1 is sometimes described as 'the spider exercise' for reasons which will become clear if you watch your fretting hand's movements in a mirror as you play through it. It's basically the first and simplest of the permutations listed above played on each string in turn. It isn't the pointless busywork it might at first appear to be either; your fingers adopt a different degree of curvature for each new string they tackle, so each string in effect offers you a variation on the basic exercise. If you want to make it look even more spider-like, you could try keeping each finger on its allotted string for as long as possible so that all four fingertips are resting on a string at any given moment. This has no direct application in real-life playing, but you'll definitely find it beneficial for your finger independence.

Example 2.1

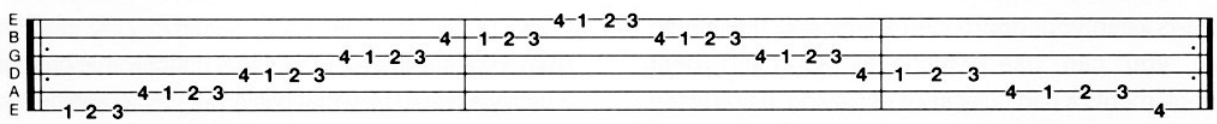


As you've probably guessed, there are 23 variations on this exercise that cycle through the finger permutations, using each in turn. You should try them all. Some will prove trickier than others and nearly all of them are more demanding than the 1–2–3–4 starting point. After a while, you'll find it more useful to focus on the hardest variations rather than practise each one for an equal amount of time – for instance, configurations like 1–3–4–2 will feel particularly troublesome, so they'll need more work.

The next step would be to incorporate some string crossing into the exercises. Example 2.2 below is much like its predecessor, but the last note in every group of four has been moved onto the next string. You might well spot the rows of 4–1–2–3 on each string, but this isn't quite the same thing as playing a 4–1–2–3 version of the spider exercise. When you're playing the notes in this exercise, the main beats fall in different places – ie the metronome clicks coincide with the notes played by the index rather than the little-finger notes, so the whole affair has a different feel to it.

(Unfortunately, this one doesn't loop quite as tidily as Example 2.1 – it adds up to two bars of four beats each and a final bar just two beats in length. Not to worry, though, it's still a valid exercise.)

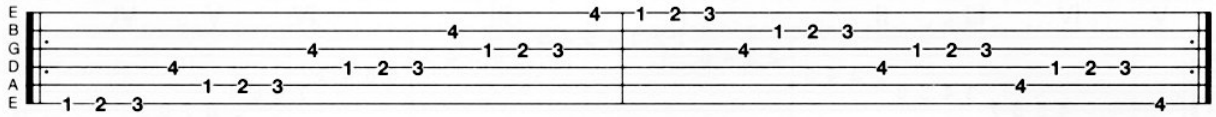
Example 2.2



Want some variations on that idea? Well, you could obviously start by applying it to all of the other finger permutations, then you might decide to insert the string change at a different point in the four-note pattern. The version shown in Example 2.2 above involved playing three notes on one string and one on the next, so why not try playing two notes on each string, or one note on the first string and three on the next?

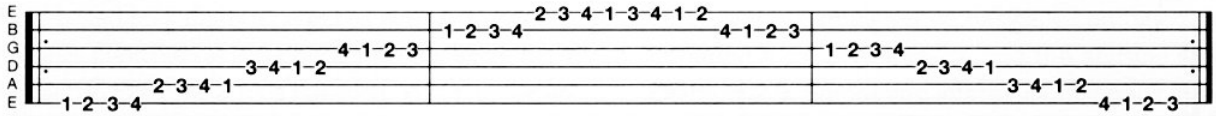
If that's not exciting enough for you (and I would urge you not to make any decisions of that nature until you've at least tried out the ideas), you could make life a little harder for yourself by skipping some strings. Example 2.3 should give you the general idea:

Example 2.3



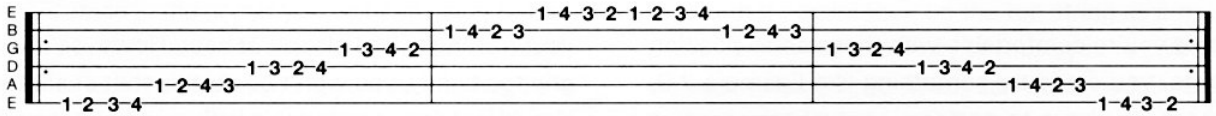
Now you can have some real fun. Example 2.4 takes a basic pattern and starts it on a different note for each string, so you'll have to think a little harder. (If you refer to the earlier chart of all possible permutations, you'll notice that the exercises listed here cycle through the variations in the top row. Needless to say, it's worth doing this with each row in turn.)

Example 2.4



Example 2.5 below takes the other approach. Referring once again to the chart of finger permutations, this workout involves moving down the first column rather than the first row, so it feels like there's less connection between the different fingering patterns. This is significantly harder than the previous exercise because it touches on all of the basic fingering patterns in a relatively short space of time. I admit that this sort of stuff can really make your head hurt, but that's how you know it's doing you good! Remember, the more effort you put in, the more dexterity you'll have at the end of it.

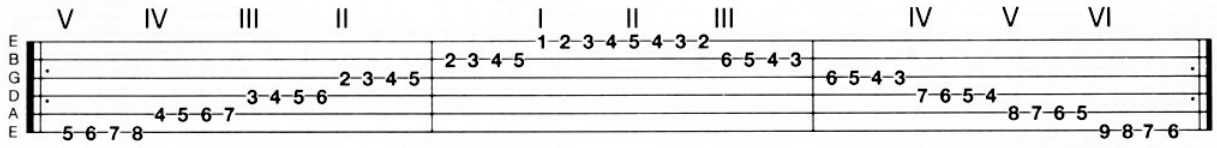
Example 2.5



Of course, it's all well and good being able to do these kinds of things in a fixed position, but you should also look at how you shift between different parts of the neck. Can you slide your fretting hand around without compromising the accuracy of your fingering at all?

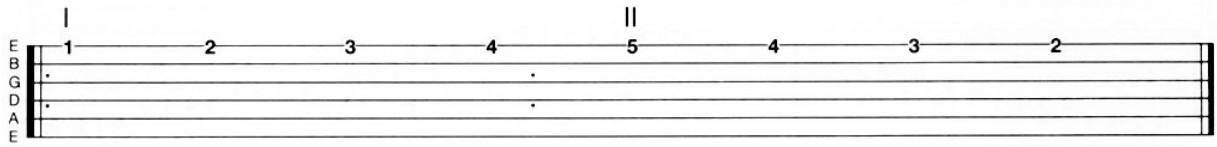
In the following few exercises, I've used traditional Roman numerals to indicate the relevant hand positions, and it's probably worth taking a moment to define exactly what they mean. In general terms, having your hand in the 'fifth position' means that your index finger is stationed above the fifth fret, with your other three fingers assigned to frets 6–8. (In more pedantic terms, it means that your middle and ring fingers cover frets 6 and 7 respectively, while your index finger tackles any notes on frets 4 or 5 and your little finger deals with frets 8 and 9. However, the simpler definition works for the kinds of things we're doing here, all of which can be played on a strict one-finger-per-fret basis.) Example 2.6 illustrates a situation in which you'd need to use position shifts. It's a *chromatic scale* – ie it contains all the possible notes between the low and high As.

Example 2.6



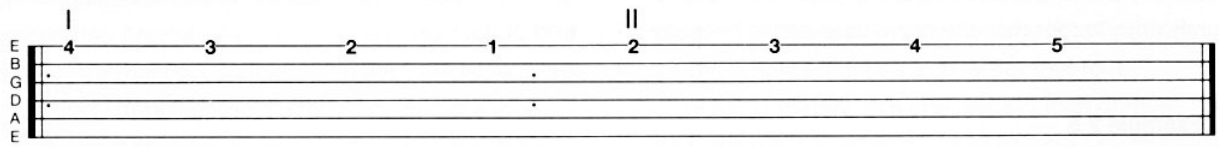
Example 2.7 is a nice, simpler introduction to the idea, and you'll find that the best way of playing this one is to lock the spacing of your fingertips and move the whole assembly up as you change position, pivoting off your thumb. You'll probably feel as if you're leaning on your little finger as you shift up and, conversely, on your index finger when you come back down.

Example 2.7



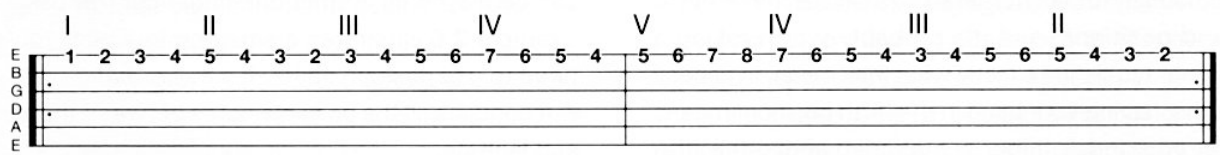
Example 2.8 is just like Example 2.7 but turned inside out. Although it looks like the same idea on the face of it, most players seem to find this one a little more difficult:

Example 2.8



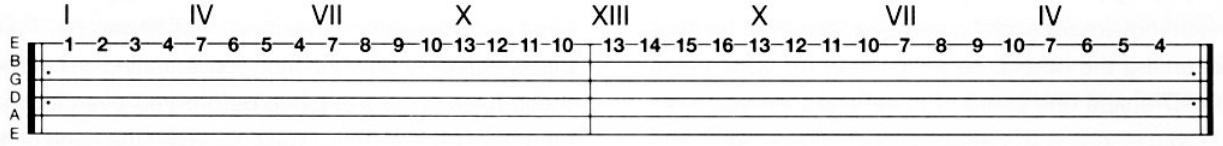
Once you're comfortable with those small position shifts, you could try something like Example 2.9, where you have to perform several consecutive shifts in the same direction. It's interesting to watch what your thumb is doing as you play through this one – it should move in sudden bursts, staying anchored on the back of the neck whenever it can rather than gliding aimlessly. If you grip too loosely, your hand won't know where it is on the neck and your fretting will be sloppy, at best. However, if you grip too tightly, you won't be able to shift at all. You should look for a comfortable halfway point between these two extremes. Think of the head of a pirouetting ballerina moving in a series of short, sharp turning motions. If her head were spinning slowly and constantly, she would get dizzy and fall over. Ballet experts assure me that this is *surely not* the desired effect!

Example 2.9



Example 2.10 is a scary variation on the above. It's the same thing as before, except for the size of the position shifts – now you have to move your hand up in three-fret increments. The aim is to play this accurately at high speeds without looking at the neck. If you persevere with this exercise, you'll end up with a comical-sounding speed lick suitable for use over chords like Fdim7 or E7♭9.

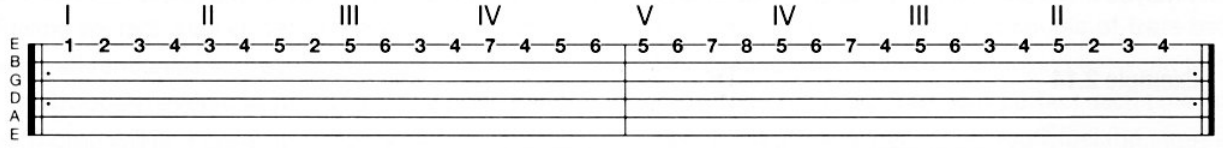
Example 2.10



OK, those position shifts look pretty extreme, I admit. On the other hand, anyone who plays a lot of power-chord-based rock rhythm parts has already mastered the basic principles at work here; the only thing that's changed in Example 2.10 is the addition of one-finger-per-fret hand positioning, requiring all of your fingers to shift accurately rather than just a couple of them. If you think of it that way, it doesn't look quite so daunting.

Moving on, Example 2.11 is a nice little workout! In an attempt to cram some ideas covered earlier into a single exercise, I've basically combined the fingering from Example 2.4 and the shifting from Example 2.9. Something interesting happens in the second half of this exercise: every beat starts with an A at the fifth fret, but you're using a different finger each time.

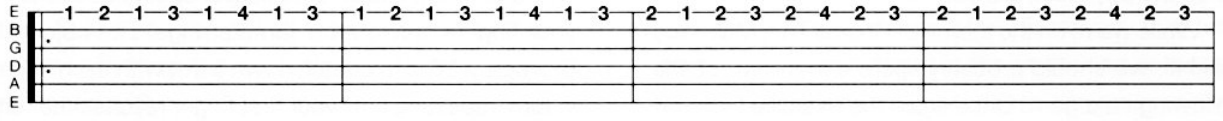
Example 2.11

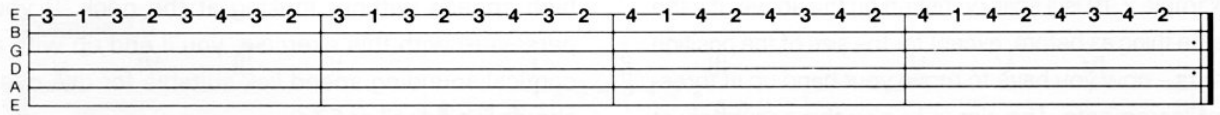


At this stage in the game, you've been using all four fingers equally, and you should have lots of warm-up ideas as a result of working your way through the above ten exercises. (I trust you remembered to try all that stuff with the other finger permutations, too?) Now seems like a good time to bring in another idea in which you designate one finger as a *pedal* (ie repeating) *note* and work around it with each of the other three in turn. If you look at the first bar of Example 2.12, you'll see what I mean – you might regard that persistent F on the top string as a pivot point. This bar isn't so tricky because you're pivoting on your index finger, which can quite happily stay on the string all the way through the exercise. Compare this with the other sections of the exercise and you'll see that you have to systematically pivot on each of the other fingers in turn. Most players find the last section a lot fiddlier than the first, so that would probably be the part you'd want to practise the most.

Example 2.12

continues...





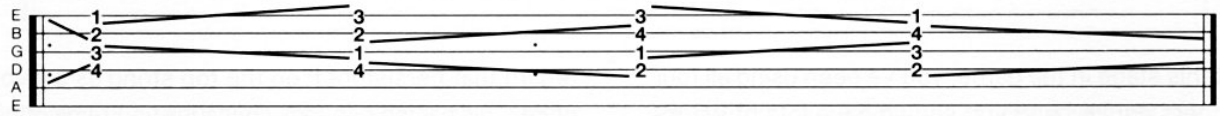
Now let's take a quick look at another approach to developing your dexterity. The goal here is to see how much movement each finger can accomplish without disturbing the others, so things start off with a nice F♯maj7 shape (the chord of lurve) and then you have to swap strings with various pairs of fingers. You'll find an unexpected problem area in the following exercises: at any given moment, moving the appropriate two fingers isn't so hard, but persuading the other two fingers not to move can be infuriatingly difficult! You might even feel the urge to reach over with your picking hand and forcefully reposition your fingertips. Take things incredibly slowly at first, concentrating on holding those fixed fingers in place before you even lift the other two off the string. You'll soon get the hang of it!

Example 2.13 moves onto adjacent pairs of strings and moves through all sorts of disgusting-sounding chord shapes before returning to F♯maj7 12 shifts later:

Example 2.13

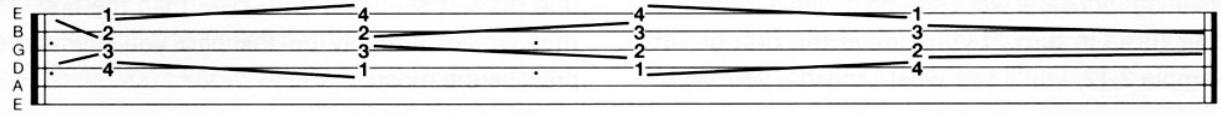
Yuk. Maybe if we shift on the E and G strings and then the B and D strings things will sound nicer:

Example 2.14



Nope, it still sounds pretty dreadful! OK, lets try swapping the outside strings, then the inside ones:

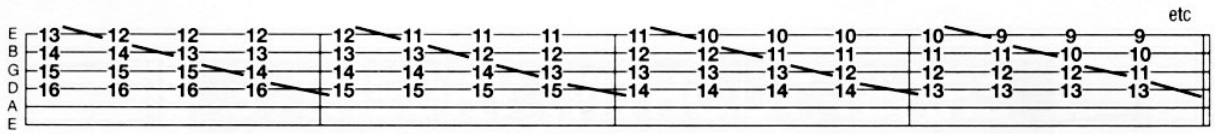
Example 2.15



Come on, now – you didn't *really* expect those chords to sound any nicer, did you?

While we're on the theme of Chords That Make You Feel Ill, we should probably spare a moment for the following little gem. Once again the exercise kicks off with an F♯maj7 chord, after which things mutate into a series of less pleasant-sounding shapes, but this time your fingers stay on the same strings. The object of Example 2.16 is to stretch down a fret with each finger in turn, repeating until your first finger reaches the nut:

Example 2.16



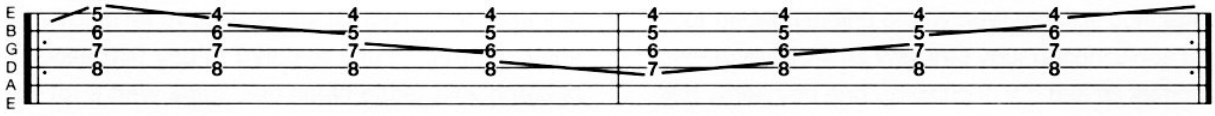
This can be a painful one if you're not used to it, so be careful not to strain anything! Actually, with stretching exercises like this, the layout of the fretboard will help you to monitor your progress. Because the frets get gradually further apart as your hand moves nutward, you can establish with some precision where your pain threshold lies.

For instance, you might find that you can always play the exercise cleanly and accurately as far down as the fifth position. Maybe you can reach the fourth on a good day, but more often than not you'll fluff a note or two down there. Maybe you managed the third position once but you don't want to try it ever again because it hurt so much. In this hypothetical situation, a reasonable short-term goal might be to get the fourth position feeling as comfortable as the third rather than forcing yourself ever closer to the first fret and giving yourself tendonitis in the process.

Obviously, everyone has differently sized hands and some will find these stretches easier than others, but that doesn't affect the fact that most players could improve their stretch by working on it a little. Who cares if someone else can stretch three frets further than you? That's not the point; the point is that, if you can increase your personal stretch by, say, half a fret over a three-month period, you've made progress, and this will be reflected in the overall strength, speed and accuracy of your fretting. For one thing, difficult chord shapes will start to come to your fingers more naturally, which is a nice confidence builder!

A good guideline is to ask yourself if all four of the notes in each chord are actually ringing properly. It's tempting to kid yourself with this exercise and decide that you've successfully reached the end of the fretboard just because your hand looks like it's playing the right chord shape. However, practising a stretch you can't use seems rather pointless to me. I think there's far more value in finding a pair of moderately stretchy positions – perhaps a couple of frets back from your absolute limit – and moving between them repeatedly until your fretting is perfect each time and your hand takes longer to tire. You'll feel the strength building up in your fingers as you persevere with Example 2.17:

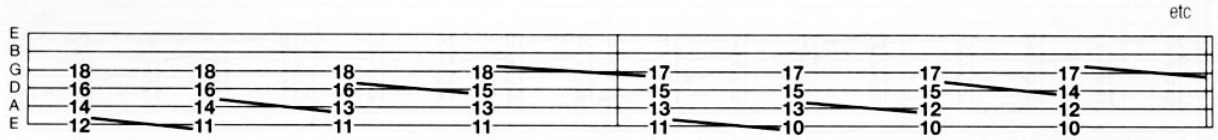
Example 2.17



Of course, you might have hands the size of Paul Gilbert's, in which case none of the above will tax your stretching prowess inordinately. But how about Example 2.18 over the page? This one looks twice as hard as the last stretch, but it's not quite as bad as all that. Still, if you can get all the way down to the nut without fluffing a note, you have a stretch to be reckoned with.

As with Exercises 2.13–2.15 (the string-swapping ones), the main challenge in these stretching exercises lies in ensuring that your fingers move only when they're supposed to. In particular, you'll find that your third finger wants to tag along whenever your second finger tries to reach down a fret. To remedy this, both digits have to participate in the stretching process – even though your third finger doesn't physically move,

Example 2.18



it is in fact opposing the movement of the second finger, which helps you to get a greater distance between the two. It might help to consider how your hand feels when you emulate Spock's live-long-and-prosper Vulcan salute, where you keep your first finger stuck to your second and your third stuck to your fourth as you splay out your second and third fingers in a V shape.

And on that *Star Trek* note, I think we should probably leave the whole finger-independence thing and move on. Hopefully, this stuff has at least shown you where the weaknesses are in the general mobility of your fretting hand, and working through some of these ideas at your own pace will help to make everything you already play feel easier, not to mention put some previously impossible licks and chords at your disposal.

3 THEORY WITHOUT TEARS

How To Approach Theory

A lot of guitar players will go to great lengths to avoid any situation where music theory might be involved. Perhaps it's the cold, matter-of-fact way in which many books (and, indeed, teachers) explain the workings of music, or perhaps it's just that we're lazier than people who play other instruments! Whichever the case may be, I'd like to make a few general comments about theory.

A basic grasp of the nuts and bolts of music theory will enable you to communicate more clearly with other musicians, and the guitarists who can exchange ideas effectively tend to be the ones who get the gigs and sessions. Theory can also make you more self-sufficient as it offers you the means with which to approach many musical problems logically as and when they arise rather than having to save them all up for that end-of-the-month guitar lesson.

Understanding how scales and chords work will save you a lot of time, in the long run. For instance, suppose that you're trying to find a harmony guitar part for a new song. You could either pick notes at random until you chanced upon some that sounded all right or you could figure out the scale that would be appropriate to the harmony of the song and thus come up with something that sounded good on your first attempt. Or let's say you've just transcribed a new lick from a CD – knowing a bit of theory will help you to understand why that lick sounds good over a particular chord, not to mention giving you some clues as to where else you might be able to apply the same ideas.

Occasionally, I come across people who maintain that they have a natural, self-taught style of their own and that they don't want to learn 'properly' because doing so would somehow dilute this style, leaving them sounding just the same as everyone else who learned in this way.

This philosophy clearly originated in a bull's digestive tract. Knowing what you're doing is always a good thing, whetner you're a guitarist or a brain surgeon. Steve Vai, for instance, whether you like his playing or not, has managed to develop one of the most innovative and distinctive styles in the history of rock guitar, 'despite' knowing the names for lots of chords and being able to sight-read fluently.

Once you know the basic rules, you can choose whether or not to think about them at any given moment. It's not as if knowing what you're doing is some kind of oppressive curse that sucks all of the life and spontaneity out of your playing; on the contrary, your understanding of any new musical concept will eventually work its way into your unconscious mind, and when you end up using it, it'll feel as instinctive as all the stuff you knew before. In more succinct terms, you might have heard sayings along the lines of 'Learn the rules so you can forget them'.

Similarly, there's a saying that runs 'You have to learn the rules before you can break them'. This is another good point – revolutionary musicians from JS Bach to Charlie Parker took great delight in breaking the rules. While music is so much the richer for their having done so, we have to acknowledge that these guys would never have made those breakthroughs if

they hadn't first familiarised themselves with the established order of doing things.

'But what about self-taught visionaries like Jimi Hendrix and Eddie Van Halen?' I hear you cry. I admit that they might not have been able to explain what they were doing in theory terms, but they still had a good grounding in the guitar styles of their predecessors, and that grounding constituted the set of rules that they then went on to break.

There's another factor at play here, too: the aforementioned unschooled players were all blessed with abnormally good ears. Someone with an innate aptitude for music might well develop a good understanding of theory based purely on the way in which things sound. Indeed, many players who have learned by ear will instinctively apply the Mixolydian mode whenever they come to hear a dominant chord without having the faintest idea what those two words mean. Theory offers a way for less natural players to acquire similar musical instincts. That said, even if you have a good ear, you should bear in mind that learning your instrument is a limitless, open-ended process – there's always something new you could be learning, and you'll learn it a lot quicker it you have some idea what it actually is!

The most important point I wanted to make is that theory is a means to an end rather than an end in itself. I agree that it can be tedious to listen to a guitarist who practises scale exercises for ten hours a day and doesn't know how to do anything else, but that would be an example of someone who has missed the whole point of theory and consequently doesn't know how to apply it. Should we blame music theory in such an instance? I think not!

Sight Reading

Learning to sight read is really a whole other book in itself. There isn't enough space here to attempt a comprehensive explanation of the concept, but I'll try to outline the basic principles in the following few pages. Now would be a good time to stick the kettle on...

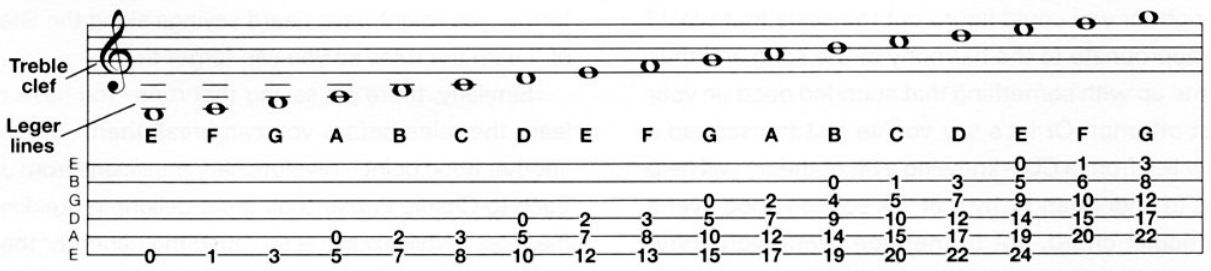
Pitch

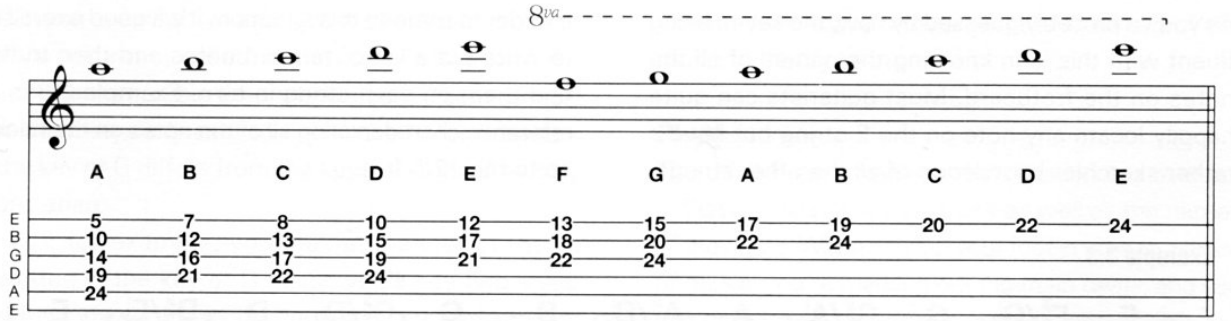
Music is written on a system of five lines called a *stave*. Notes are represented by dots placed either on the lines or in the gaps between them, and the higher a note is in pitch, the higher its corresponding dot will be placed on the stave. If a pitch is too high or too low to be represented within those five lines, smaller *leger lines* are used to extend the range of the stave.

In order to determine exactly which pitches the lines and gaps represent, a *clef* is placed at the beginning of the stave. Music written for higher-pitched instruments might be written with a *treble clef*, whereas bass music would use a *bass clef*, reasonably enough! Guitar music is written with a treble clef, but with the proviso that the notes will actually sound an octave lower than written. (That last part is an interesting bit of trivia but nothing to get worried about.)

Here's a chart showing how some notes on the guitar neck would look on the stave. Observe how I've eliminated some of those ungainly leger lines for the highest notes by writing them an octave lower and writing '8va' above the stave:

Example 3.1





You can immediately see why guitarists avoid sight reading – the stave can tell you which notes to play but not where to play them. The pitch of the open top E string, for instance, can also be played in up to five other locations on the neck, whereas on a piano, for example, there's only one key capable of producing that note.

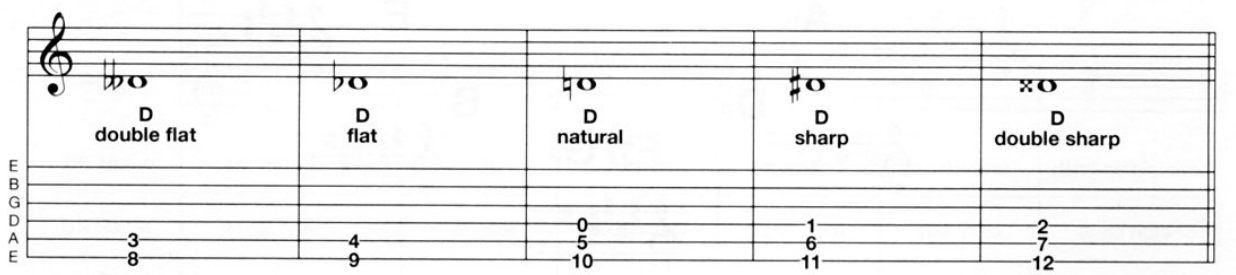
For this reason, sight reading is a much less natural process for guitarists than it is for keyboard players. Each time we're confronted with written music, we have to assess the average pitch of a melody and choose an area of the fretboard from which all of the relevant notes are easily accessible.

Incidentally, if you teach yourself sight reading from a book intended for classical guitarists, you'll probably be encouraged to start from the open position (the nut end of the fretboard) and work your way up the neck. For electric-guitar playing, I would recommend that you start somewhere between the fifth and seventh frets. Playing at this part of the neck gives results that sound more like 'real' guitar playing and gives you a wider range of notes at your disposal – ie you can move down or up from this default position, whereas if you're based down by the nut you can only shift upwards.

In Example 3.1, you'll notice that I didn't put in any sharp or flat notes. This is because they're not 'built into' the stave; they have to be represented by sticking an *accidental* (sharp [♯] or flat [♭] sign) in front of the notehead. Once you've applied an accidental to a particular note, it applies to every recurrence of that note throughout the remainder of the bar. To cancel it out, you have to use another accidental called a *natural* (♮).

The other accidentals you'll occasionally come across are the double sharp (×) and double flat (𝄫). These are less common, and you might well be puzzled by the need for them (F×, after all, sounds exactly the same as G♮). The reasoning behind this will become clear in the section on scales a little later on, so don't panic. For now, here are a few examples of accidentals:

Example 3.2



As you've probably guessed by now, the key to being fluent with this is in knowing the names of all the notes on the fretboard. Most guitarists can quite happily locate any note on the E string but have a rather sketchier knowledge of all the other strings.

In order to remedy this situation, it's a good exercise to write out a list of random notes and then try to find them on each string in turn. Example 3.3 is a reference chart depicting all of the notes on the neck, up to the 12th fret.

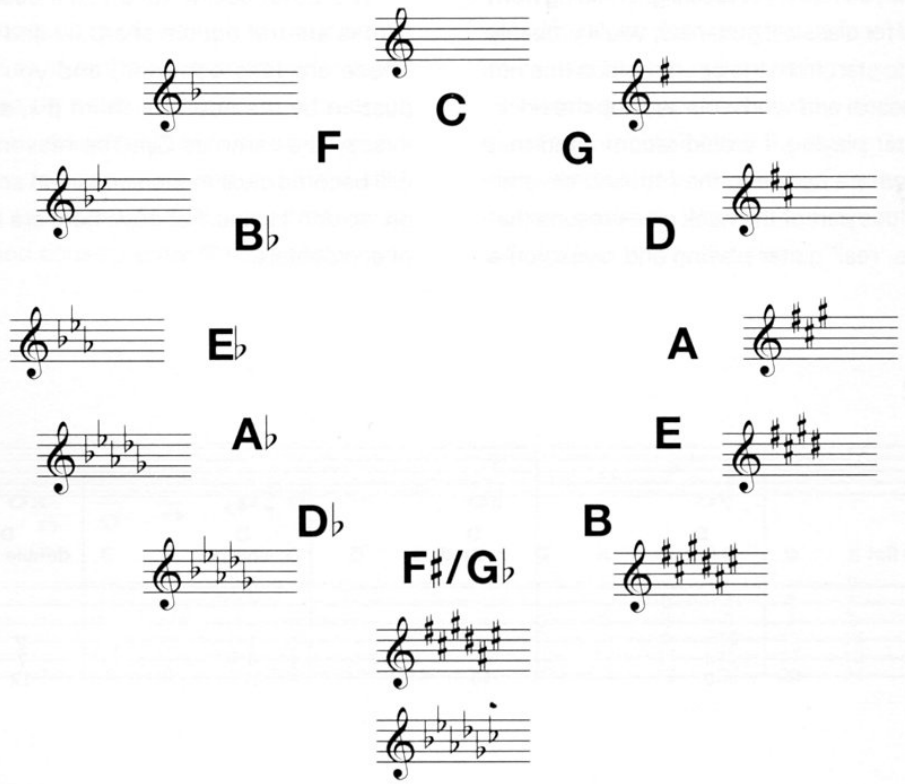
Example 3.3

E	F	F♯/G♭	G	G♯/A♭	A	A♯/B♭	B	C	C♯/D♭	D	D♯/E♭	E
B	C	C♯/D♭	D	D♯/E♭	E	F	F♯/G♭	G	G♯/A♭	A	A♯/B♭	B
G	G♯/A♭	A	A♯/B♭	B	C	C♯/D♭	D	D♯/E♭	E	F	F♯/G♭	G
D	D♯/E♭	E	F	F♯/G♭	G	G♯/A♭	A	A♯/B♭	B	C	C♯/D♭	D
A	A♯/B♭	B	C	C♯/D♭	D	D♯/E♭	E	F	F♯/G♭	G	G♯/A♭	A
E	F	F♯/G♭	G	G♯/A♭	A	A♯/B♭	B	C	C♯/D♭	D	D♯/E♭	E

You're nearly at the stage at which you should be able to pick up any piece of written music and decode the notes it contains. The one thing I haven't mentioned yet is the concept of *key signatures*.

For reasons that will become clear later, when we take a closer look at scales, the number of flat notes and sharp notes in a piece of music varies according to the key in which the piece is written. (In the key of D major, for instance, you'll often spot an F♯ but seldom will you see an F♮.) Key signatures show you which notes should always be sharpened or flattened in a particular key by grouping all of the necessary accidentals together and putting them just after the clef, and they stop the page from looking cluttered with accidentals. Here's a list of all the key signatures:

Example 3.4



Can you see why I've arranged the keys in this order? This pattern is called the *cycle of fifths*, and it's important in music theory because it places closely related keys adjacent to each other – for instance, the key of G differs from the keys of C and D by only one sharp.

If, for example, you look at a sheet of music written in the key of D major, you'll see two sharp signs indicated next to the treble clef. This means that, every time you see an F or a C, in any octave, you should automatically play them as F♯ or C♯, unless there's a natural sign next to them specifying otherwise.

That's pretty much all you need to know about finding notes on the neck. Normally, your best approach is to ascertain the key of the music, then pick an appropriate scale fingering for that key and navigate up and down the notes within that shape rather than going to the trouble of naming each individual note one by one. In the section of *Creative Guitar 2* devoted to alternate picking, you'll find lots of exercises to try out. Once you've figured out how to play one, you could try refingering the same notes in another part of the neck, thus getting a bit of extra practice (not to mention avoiding the temptation to cheat by making sure you can't consult the tab underneath!). If you spend a bit of time on developing this skill, you'll get to the point where you find proper music notation more useful than tablature. The latter is merely a list of instructions for your fretting hand, whereas the stave shows you the *meaning* of the music in theory terms.

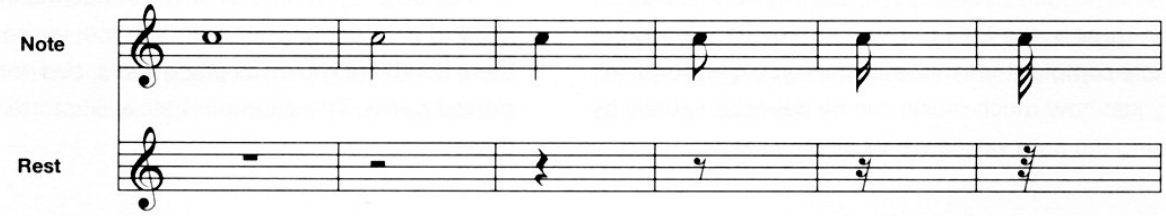
Rhythm

The other huge advantage that notation has over tab is that it indicates the rhythms as well as the names of the notes. When you tap your foot in time to a piece of music, you're marking out the main *beats*, and you can usually hear a point every few beats where the overall rhythmic pattern – the *bar* – seems to come full circle and start over again. The number of beats in a bar is indicated by the *time signature*, which you'll find at the start of the music, just after the clef and the key signature. Throughout the notated piece, lying across the stave you'll see vertical *barlines* that divide the music into its component bars.

You'll see time signatures written as two numbers, one stacked on top of the other, rather like a fraction, with the top number determining the rhythmic feel of the music and the bottom number pertaining to how the beats are written. In more precise terms, the top number represents the number of beats in each bar and the bottom number is a reference to the *note values* assigned to each beat.

First, let's look at the most common note values. In basic terms, there are different ways of decorating a notehead depending on how long the note should last. Similarly, there are various symbols that denote *rests* (silences) of different durations. Take a look at Example 3.5 below:

Example 3.5

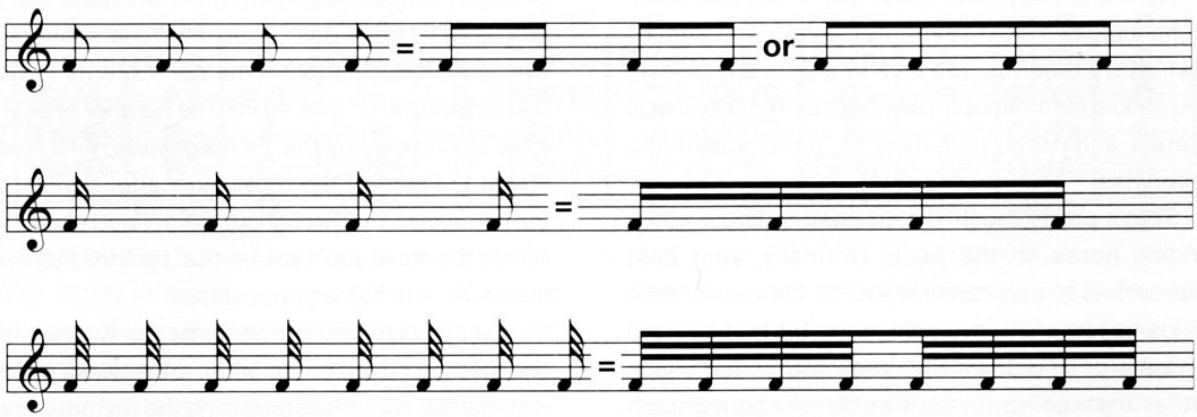


UK Name	semibreve	minim	crochet	quaver	semiquaver	demi-semiquaver
US Name	whole note	half note	quarter note	eighth note	16th note	32nd note
Explanation	(4 beats)	(2 beats)	(1 beat)	(half beat)	(quarter beat)	(eighth beat)

You'll probably see more logic in the US terminology. Each note in the above chart lasts half as long as the one before it, and the names use the length of a bar of 4/4 (by far the most common time signature in popular Western music) as their benchmark.

It's customary to group the shorter notes by connected them with *beams*, thus making it easier to see where each new beat falls. Compare the following:

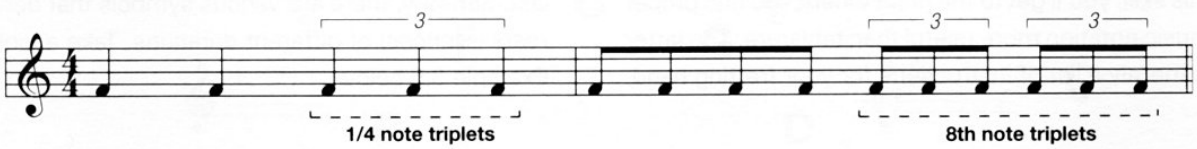
Example 3.6



Makes it easier to follow, doesn't it?

All of the above takes a kind of binary approach to note values, but sometimes you might need to squeeze three evenly spaced notes into the time it usually takes you to play two, in which case you would see the following notation:

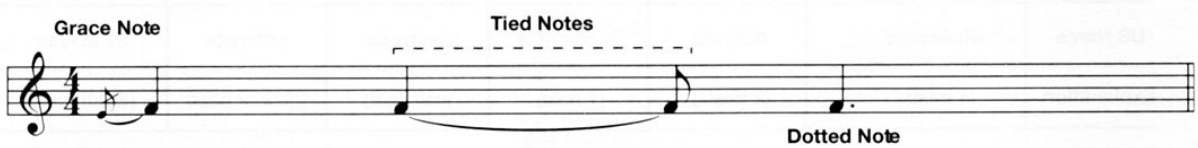
Example 3.7



The latter half of each bar in Example 3.7 illustrates the three-in-the-time-of-two rhythm. Things can get more complex than this, but I think you'd be surprised by just how much music can be described purely by using the note values we've already seen.

The other elements of written music that you'll need to consider (please bear with me, we're nearly there now!) are known as *grace notes*, *tied notes* and *dotted notes*. The example below illustrates all of these:

Example 3.8



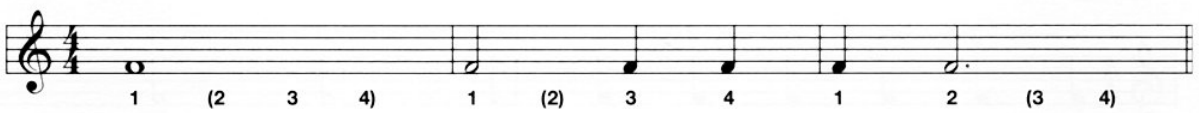
Theoretically, the grace note lasts no time at all – it's played as quickly as possible, leading immediately into the full-sized note that follows it. (In guitar terms, you would normally pick the grace note and then hammer, slide or bend up to the main note.)

To play a group of tied notes, you would pick the first note and let it ring for the total duration of any subsequent note values tied to it. In the previous example, the total length of the tied notes would amount to a beat and a half.

The last note in Example 3.8 sports a dot after the notehead. This increases the length of the note by 50 per cent, so if a crotchet lasts for one whole beat, a dotted crotchet would last for one and a half beats. (You'll sometimes see more than one dot after a note. Each dot means that you add half as much time as the one before it, so appending two dots after a crotchet would add three-quarters of a beat to its length, three dots would add seven-eighths of a beat and so on.)

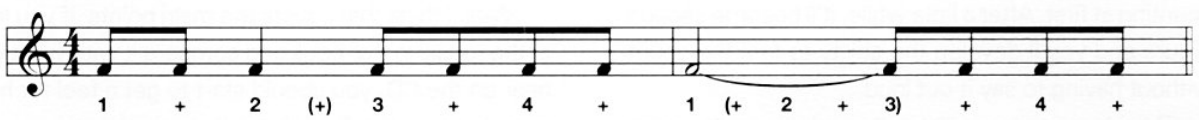
The key to mastering rhythm reading lies in the way in which you count time. Imagine evenly counting '1, 2, 3, 4' over each bar, with each number corresponding to a beat and thus to a click of the metronome. You could play the example below by counting in this manner and starting each new note where the appropriate number occurs.

Example 3.9



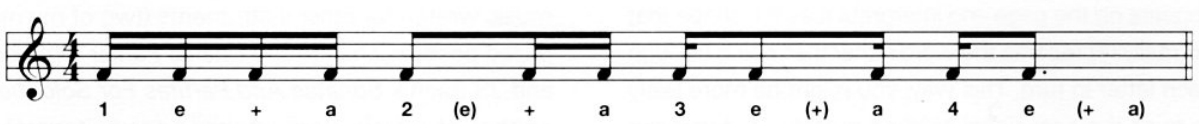
If you're dealing with eighth notes, you'd have to count '*1* and *2* and *3* and *4* and...' The numbers would be spaced exactly as they were in the above example, with the *and*s falling exactly halfway between. For instance...

Example 3.10



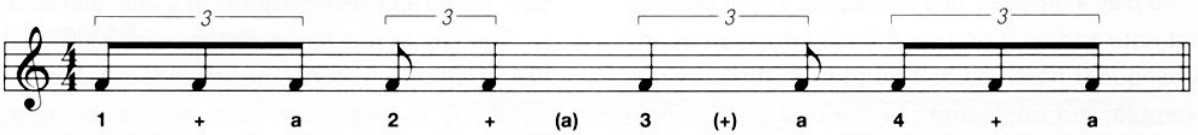
If 16th notes rear their ugly heads, you have to fill in the gaps between the main beats and the *and*s. Normally, this is represented as '*1* e and a *2* e and a *3* e and a *4* e and a...' Mathematically inclined readers might find this process reminiscent of fractals – the same subdivision idea is being applied on a progressively smaller scale each time the note values halve. For instance...

Example 3.11



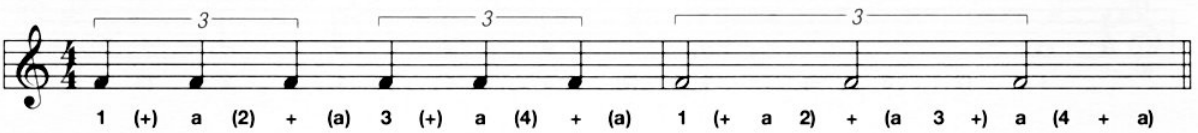
If triplets are involved, you would count '*1* and a *2* and a...' instead, stretching out the syllables so that they filled the beats evenly, as illustrated in the diagram below:

Example 3.12



If note values longer than an eighth note are involved in a triplet grouping, you can still think in these terms. See if you can make sense of the following, where the '3' above the notes is a shorthand for 'cram three of these notes into the time normally allocated to two of them':

Example 3.13



In each of the above examples, it's important to keep the counting rigidly in time so that it can act as a framework, a guide to when you should play each note. As was the case when you learned to read the printed word, you'll probably find it useful to verbalise this counting at first. After a little while, it'll become second nature and you'll develop the ability to feel the count without having to say it out loud.

There's another parallel with reading words: when you're starting out learning music, you have to decode the rhythms note by note, just as someone learning to read has to start out dealing with one word at a time, vocalising the sound of each letter in turn and speeding up this series of sounds until it starts to sound like a word. After a while, you gain more familiarity with the common patterns that recur and you can interpret the information in bigger chunks. When you read the word *apple*, your eye recognises the shape of the word as it appears on the page and interprets it as the shape that normally represents the word rather than going through each letter in turn. This way, you might be more likely to miss the occasional spelling mistake, but you can assimilate the information faster, and as a result it's easier to focus on the meaning of your reading matter. Ditto with rhythms – once you've had a bit of practice, you'll start to recognise the common rhythmic groupings and you won't have to think as hard or count as deliberately.

Well, I think that covers the main points. If you look at the music in this book and compare it with what you hear on the CD, you should start to get a feel for how everything works. The rest is just practice.

However, the question remains: 'Do I really *need* to be able to sight read?' I think you can be as musically illiterate as you like and still benefit from the material in this book because I've tried to explain things as thoroughly as possible – and besides, there's an accompanying CD that illustrates what everything sounds like.

However, understanding the basics of written music opens up all sorts of possibilities – you can learn from music written for other instruments (two of my most prized possessions are the Charlie Parker *Omnibook* and JS Bach's *Sonatas And Partitas For Solo Violin*, neither of which were intended for guitarists). In

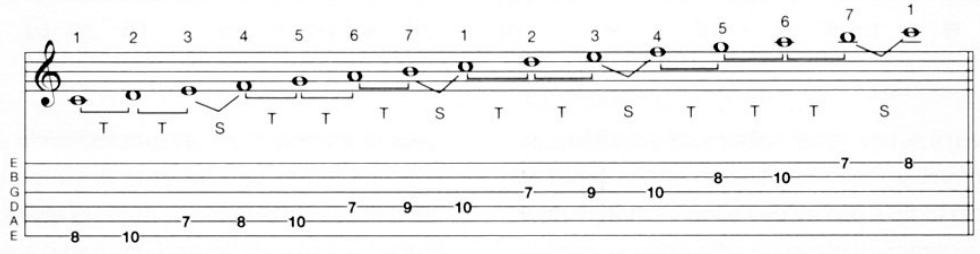
addition, you'll find musical notation to be a useful way of conveying your ideas to people who play other instruments, and this mutual medium of communication can save you a lot of time and effort.

Finally, just as the ability to read English makes you a lot more employable, imagine the nerve-racking yet rewarding experience of successfully reading your way through a gig without any prior knowledge of the set or the other people in the band. You might occasionally hear someone condemn music literacy as sad, pointless or 'not very rock 'n' roll', but often the only people who feel this way are those who can't do it. Reading music can really help your growth as a guitarist, so don't let anyone put you off.

4 SCALES AND CHORDS

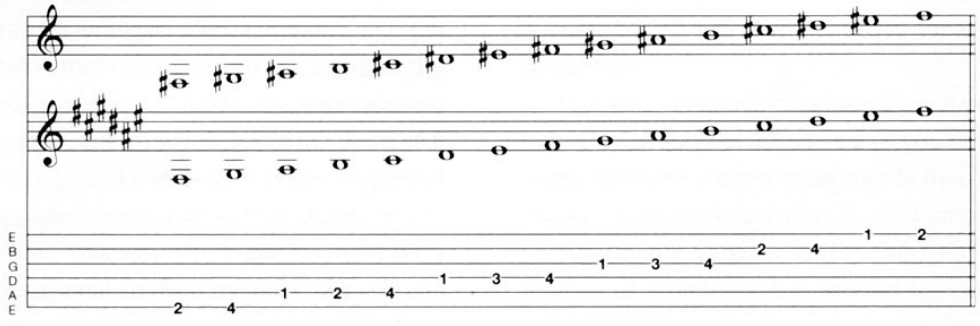
Let's start by looking at the most important scale in music theory: the major scale. This starts with a *root note*, or the note that shares its name with the key of the scale (the root note of a C major scale, for instance, would be C). The other notes in the scale are generated by moving up from the root note in a pre-determined pattern of *semitones* (the distance between two adjacent frets) and *tones* (gaps of two semitones). Example 4.1 below shows you a C major scale written out in musical notation:

Example 4.1



As you can see, the scale follows the pattern 'T(one) T S(emitone) T T T S' and then repeats itself. The distance between each C and the next is an *octave*. Example 4.1 spans twice this distance and so is in effect a two-octave major scale. You could theoretically extend this pattern as far in either direction as you liked, but you'd still be using only the notes C, D, E, F, G, A and B. Thus all of the essential information about the scale is contained in the first octave, and for theory purposes the notes in that octave are numbered from 1 to 7. You'll note that the C major scale contains no sharps or flats, but the story would be different if you started from, say, F♯:

Example 4.2



Now there are accidentals aplenty! As with the C major scale, this scale one starts with a root note and moves up in that fundamental T T S T T T S pattern.

Once again, each degree of this scale is numbered sequentially from 1 to 7. If you compare the two staves, you'll have to agree that the second one looks a lot tidier. Given that the scale sounds like Example 4.1 in a different key and indeed feels much the same (the fingering has just been moved down six frets), you'll see why the use of key signatures is such a good idea – they emphasise these similarities and make scales easier to read. If you had to sight read something in F♯, you could simply adopt an appropriate scale fingering and trust it to put all of the sharps in the right places for you.

When naming the notes in a major scale, theory buffs like to use each letter of the music alphabet once and once only, which explains the disturbing-looking E♯ note. Normally, you'd call this note F, but the F♯ has already claimed this letter, so E♯ it must be.

Naming the notes in this way also clarifies the issue of *intervals* (the gaps between the notes). To be more specific, the following definitions are derived from the major scale:

The gap between 1 and 2 is a *major second* (two semitones)

The gap between 1 and 3 is a *major third* (four semitones)

The gap between 1 and 4 is a *perfect fourth* (five semitones)

The gap between 1 and 5 is a *perfect fifth* (seven semitones)

The gap between 1 and 6 is a *major sixth* (nine semitones)

The gap between 1 and 7 is a *major seventh* (11 semitones)

Just as you can turn a major interval into a minor one by making it a semitone smaller, you can turn a perfect interval into an *augmented* one by adding a semitone or a *diminished* one by taking a semitone away, so the other possible intervals smaller than an octave can be defined thus:

The gap between 1 and ♭2 is a *minor second* (one semitone)

The gap between 1 and ♭3 is a *minor third* (three semitones)

The gap between 1 and ♯4/♭5 is an *augmented fourth/diminished fifth* (six semitones)

The gap between 1 and ♯5/♭6 is an *augmented fifth/minor sixth* (eight semitones)

The gap between 1 and ♭7 is a *minor seventh* (ten semitones)

You might think that these last few intervals are irrelevant to the major scale, but bear in mind that so far we've only been looking at intervals starting from the root note. The gap between 3 and 4 would have to be described as a minor second, as would the gap between 7 and 8.

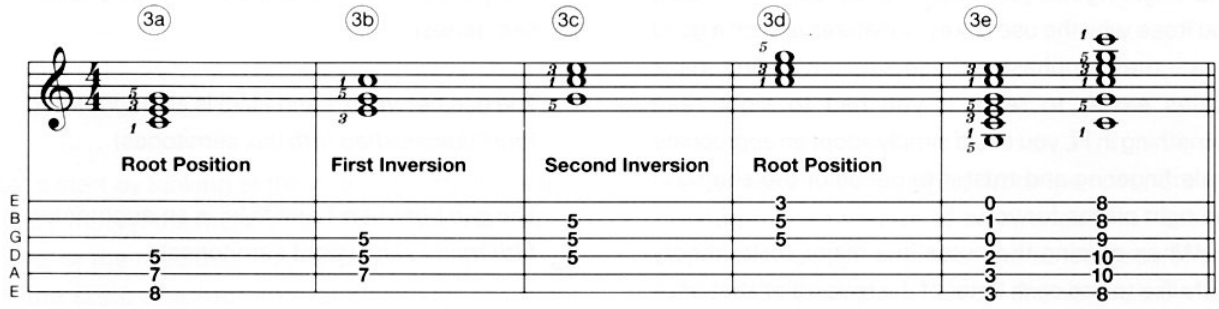
(The diminished fifth, incidentally, also goes by some other names. It's sometimes called the *tritone* – for reasons which become clear when you consider how many tones there are in six semitones – or the *Diabolus in musica*. This latter term, meaning 'the Devil in music', was coined by the Church many centuries ago because it considered this interval of exactly half an octave to have a less holy sound than the interval produced by a third of an octave, ie the major third. Something to do with the Holy Trinity, I suppose. In fact, playing a tritone could get you into a lot of trouble, as it was seen as a way of summoning Satan – and when you listen to the dissonant sound of that interval, you can see the Church's point! Coincidentally or otherwise, the form of modern music that relies most heavily on flattened fifths is probably death metal. Draw your own conclusions...)

In all cases, written music should correctly indicate the number of scale tones between any pair of notes so that the intervals can be easily identified.

Scales are often misunderstood as being mere technical exercises. In fact, a scale is a lot more than that; it's a collection of notes that sounds good over a particular chord or series of chords. You can play these notes in any order and you can combine them to create harmony lines or chords.

Let's look at how you could use the scale of C major to generate chords. The most basic kind of chord in music theory is a *triad*, which, as its name suggests, contains three different notes. Triads are built using the first, third and fifth notes of the scale, and the following are examples of C major triads:

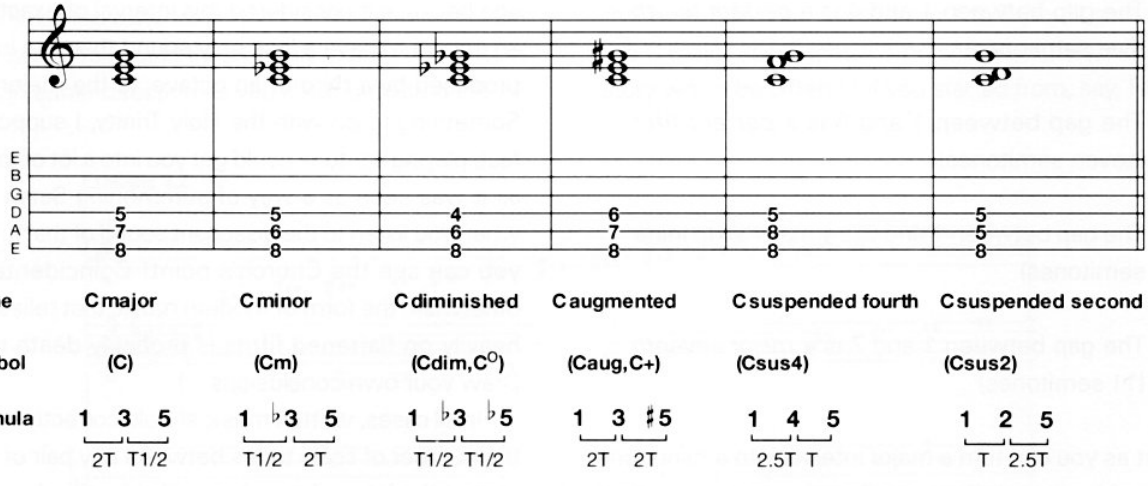
Example 4.3



Example 4.3a shows you the basic triad formation while 2.3b–2.3d show what happens if you take each note in turn and move it up an octave. These chords are known as *inversions*, and you'll note that, by the time we get to 2.3d, we're back to the original inversion but this time an octave higher. Example 4.3e illustrates the workings of two common guitar voicings for a C major chord – although they use all six strings, you'll see that they're still built up from the same three basic notes.

The example above illustrates major triads, but it's possible to turn these into other kinds of triads by altering some of the notes. Take a look at this next example (the formula underneath each chord comes from comparing its component notes with those of the major triad).

Example 4.4



Name	Cmajor	Cminor	Cdiminished	Caugmented	Csuspended fourth	Csuspended second
Symbol	(C)	(Cm)	(Cdim,C°)	(Caug,C+)	(Csus4)	(Csus2)
Formula	1 3 5	1 ♭3 5	1 ♭3 ♭5	1 3 ♯5	1 4 5	1 2 5
	2T T1/2	T1/2 2T	T1/2 T1/2	2T 2T	2.5T T	T 2.5T

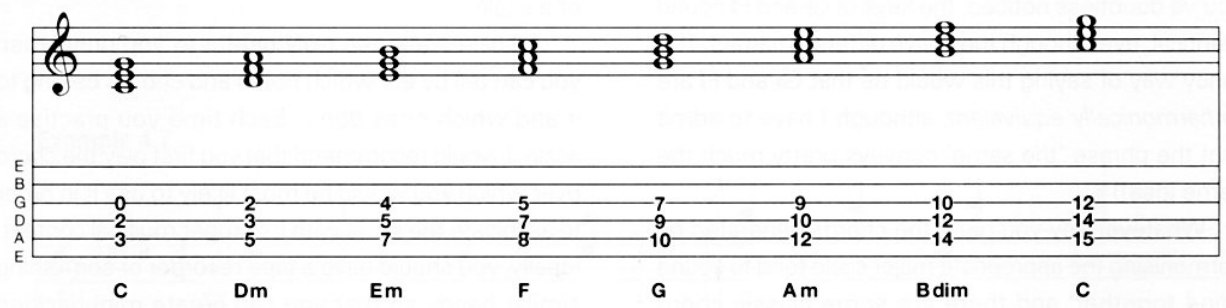
The major and minor triads are by far the most common because they produce the most stable sounds. Major chords are generally perceived to have a happy sound, whereas minor chords are thought to sound sad.

With this in mind, the mood of a chord is dictated by the third degree of the scale, so you'll hear a certain vagueness in the mood evoked by the sus2 and sus4 chords. These chords effectively sit on the fence with regard to the whole happy/sad issue by avoiding the third altogether. The result is a certain tension in the way that they sound – if you played a sus4 chord and followed it with a major or minor triad, you'd hear this tension being resolved. Think of Pete Townshend's intro to 'Pinball Wizard'.

The diminished and augmented triads, meanwhile, just sound plain weird. That's not to say that they aren't useful, but if you were trying to write a song, starting with 16 whole bars of Caug (C augmented) would be a bad plan! Triads like these are most effective when they're used in small doses, sandwiched between two more stable-sounding chords.

Example 4.5 illustrates a C major scale harmonised in *diatonic triads*. The idea is to start off with the C major triad encountered in Example 4.3 and move each of its notes up to the next available note in the major scale. By repeating this process, you should end up with a group of seven different chords, all constructed using the notes of the C major scale.

Example 4.5



As you can see, the above example features a mixture of major, minor and diminished triads, as dictated by the distribution of intervals within the scale. The pattern in which these chord types occurs remains the same for any major scale, so you could express the general formula (for any key) as...

I ii (m) iii (m) IV V vi (m) vii (dim)

...which simply replaces the letter names with Roman numerals (upper case for triads featuring a major third, lower case for those with a minor or diminished third). In classical circles, the I, IV and V (major) are sometimes described as the *primary chords*, while the ii, iii and vi (minor) are *secondary chords* and the vii (diminished) is a *tertiary chord*.

This system is sometimes described as 'Nashville numbers', a reference to Nashville's world-renowned country-music industry. In days of yore, the session players working in this scene often had to deal with the key of a song being changed at very short notice – normally to make the vocalist more comfortable, I guess – and they found that the best solution was to notate the chord progression in Roman numerals so that the chart would make sense in any key. On jam nights, you would sometimes see a musician gesturing to his bandmates by holding up, say, four fingers, which would be sign language for 'Now let's change to the IV chord'. It's a lot more reliable than trying to shout the name of the chord while the drummer is in full flight! Here's a chart showing how this applies in other keys:

I	ii (m)	iii (m)	IV	V	vi (m)	vii (dim)
G♭	A♭m	B♭m	C♭	D♭	E♭m	Fdim
D♭	E♭m	Fm	G♭	A♭	B♭m	Cdim
A♭	B♭m	Cm	D♭	E♭	Fm	Gdim
E♭	Fm	Gm	A♭	B♭	Cm	Ddim
B♭	Cm	Dm	E♭	F	Gm	Adim
F	Gm	Am	B♭	C	Dm	Edim
C	Dm	Em	F	G	Am	Bdim
G	Am	Bm	C	D	Em	F♯dim
D	Em	F♯m	G	A	Bm	C♯dim
A	Bm	C♯m	D	E	F♯m	G♯dim
E	F♯m	G♯m	A	B	C♯m	D♯dim
B	C♯m	D♯m	E	F♯	G♯m	A♯dim
F♯	G♯m	A♯m	B	C♯	D♯m	E♯dim

In the above reference chart, I've followed the cycle of fifths first introduced in the previous chapter. (As you've doubtless noticed, the keys of G♭ and F♯ sound identical, even though they have different names. The fancy way of saying this would be that G♭ and F♯ are *enharmonically equivalent*, although I have to admit that the phrase 'the same' conveys pretty much the same idea!)

Whatever key you're in, the chords generated by harmonising the appropriate major scale tend to sound good together, and there are some classic chord progressions that crop up time and time again in popular music, such as:

I – IV – V (a typical blues/rock progression, as in 'Summertime Blues' or 'Wild Thing')

ii – V – I (a common pattern in jazz – think of the start of 'Autumn Leaves' or 'I've Got You Under My Skin')

I – vi – ii – V ('Summer Holiday' and 'Blue Moon' spring to mind)

I – ii – iii – IV – V ('Like A Rolling Stone' illustrates how this most obvious progression of all can sound very effective)

Why not pick a scale and use some of the diatonic chords within it to write a progression of your own? You could write the chords out as Nashville numbers and then transpose your progression into various keys. You might even want to experiment with adding the occasional non-diatonic chord to add that surprise factor. (How about throwing in a ♭iim [flat second minor] chord, such as D♭m in the key of C?) Applying a formula like 'three right chords, then one wrong chord', for instance, would most likely give you a riff with a Nirvana-like vibe.

However you choose to approach it, this whole system will seem a lot more useful once you've tried putting it into practice, so experiment!

Hearing Scales And Chords

The last few pages have been quite theory-intensive, so perhaps we should take a moment to reflect on the more general matter of how to learn the *sound* of a scale.

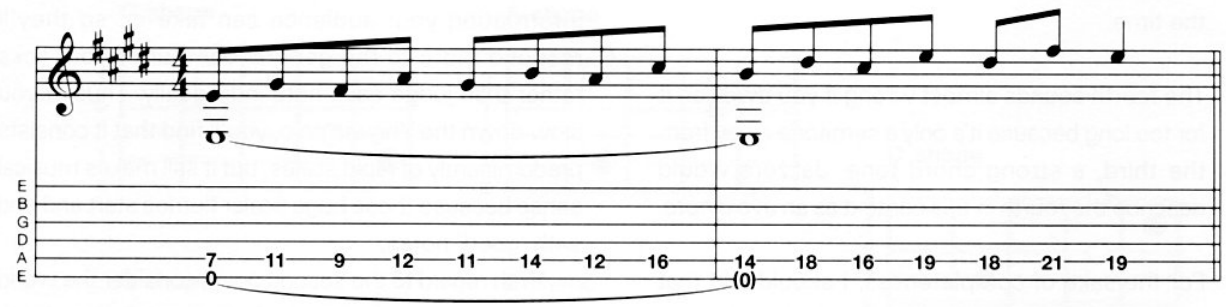
A scale becomes truly useful to you only when you can tell by ear which notes and chords belong to it and which ones don't. Each time you practise a scale, I would recommend that you first play the chord over which you would be most likely to use it in order to associate the scale with its proper musical context. Ideally, you should have a tape recorder or something similar handy so that you can create mini-backing tracks for each scale. Nothing fancy is required here; strumming a C major chord at regular intervals produces a perfectly adequate backing track for trying out the C major scale.

Another important point is that, in the real world, the notes of a scale won't always occur in numerical order. The more ways that you can find of jumbling up the notes of a scale and rearranging them, the more you'll learn about what you can do with the scale itself. Playing all of the different intervals is a good start (you'll find plenty of example in the section on 'Alternate Picking' in *Creative Guitar 2*), and a good test of exactly how well you know a particular scale is to try singing each note of a pattern of intervals before you play it. You'll find that this gets progressively more difficult as the intervals get bigger – the sound of simply running up and down the scale is relatively easy to predict, but ascending in sevenths

is a lot trickier! The more you hear yourself playing through various scalar patterns, the better your ear will get at this guess-the-next-note game.

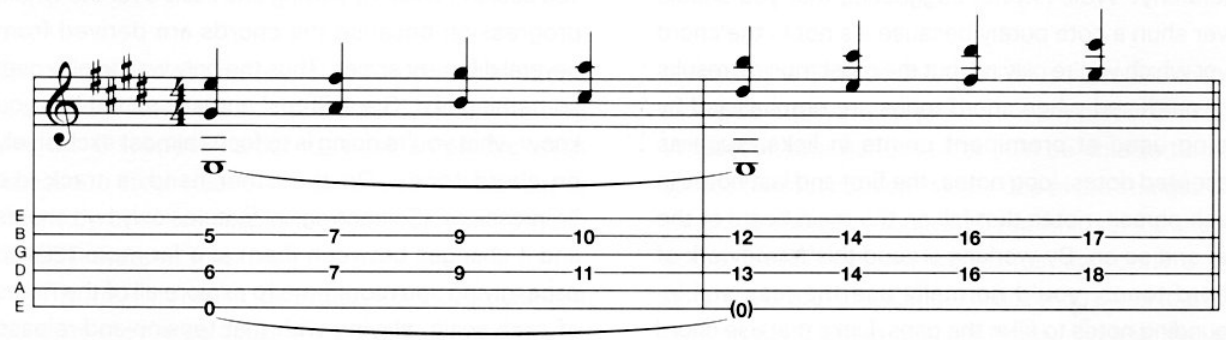
Another good approach is to break out of the boxes imposed on you by conventional scale fingerings and try playing lines on one string. This imposes less strain on your memory but makes up for it by forcing your ears to work harder. If you do this in a key like E, you can use an open string as a drone to guide you, and you might come up with exercises like this...

Example 4.6



...or, bending the single-string rule slightly, this:

Example 4.7



Example 4.6 above featured ascending thirds, whereas Example 4.7 used ascending sixths. If you had to play these passages from memory, you'd probably find the latter more tricky, partially because sixths are a less common interval than thirds and partially because the exercise requires you to change two notes at a time.

Hopefully, these last two examples will encourage you to come up with some exercises of your own. (Stuff like this is not only good training for your ears, it might also give you more confidence in your slide playing, an area in which single-string playing is particularly prevalent.)

Notes Of The Scale

From an improvisational point of view, you'll need to bear in mind the Orwellian principle that all notes in a scale are equal, but some are more equal than others. Although all seven notes of a major scale are technically correct, some sound more settled than others, and I think you can arrange them in a kind of hierarchy. Taking the example of a C major scale played over a C major chord, you would probably agree with the following:

- The root note (C) is the most stable-sounding note you can play.

- The third and fifth (E and G) sound nearly as good. They might not be root notes, but they're nevertheless contained in the chord, so you might very reasonably describe them as *chord tones*.

- The second, sixth and seventh (D, A and B) have a less stable effect, but they add a little colour and relieve the monotony of just playing 1, 3 and 5 all the time.

- The fourth sounds almost wrong if you dwell on it for too long because it's only a semitone away from the third, a strong chord tone. Jazzers would describe the fourth in this context as an *avoid note*.

- For the sake of completeness, I should add that the five other notes (ie those not included in the major scale) obviously sound the least appropriate of all.

So how do you apply this knowledge of the note hierarchy? Well, I'm not suggesting that you should ever shun a note purely because it's not in the chord over which you're playing, but the most musical results are produced when chord tones are emphasised by being used at prominent points in licks, such as accented notes, long notes, the first and last notes in each phrase, notes that fall on the main beats of the bar and so on. By working around this framework of chord tones, you'd normally use the less stable-sounding notes to fill in the gaps. Licks that use chord tones exclusively tend to have a melodic, tuneful quality about them, but after a while this can start to sound a little predictable, in which case throwing in the other notes of the scale will help to keep things sounding interesting.

Changing Chords

The way in which you balance the notes of a scale will depend on two factors: how fast you're playing and how fast the chords are changing. To illustrate the first point, compare the solo from The Eagles' 'Hotel California' with Yngwie Malmsteen's 'Trilogy Suite' solo. The former is arguably one of the most memorable guitar moments of all time, because every note in it was carefully selected to complement the chord progression. Meanwhile, the latter might not have as much melodic quality (anyone who sings that solo in the shower clearly needs help), but it undeniably boasts a higher energy level due to the sheer quantity of notes. I'm going out on a limb here, but I think that there's less incentive to be melodic when you're playing at high speeds – there's only so much information your audience can take in, so they'll respond more to the general contour of your licks rather than judge each note individually. Thus, if you slow down the Yngwie solo, you'll find that it consists predominantly of rapid scales, but it still makes musical sense because those huge scalar flurries start and end with 'good' notes.

With regard to the second point, consider the world of jazz for a moment. Jazz is a form of music that places particular emphasis on chord changes. If you were negotiating the harmony in something like John Coltrane's much-feared 'Giant Steps', you'd have to deal with roughly two chords per bar at high speed. You couldn't cheat by playing one scale over the whole progression because the chords are derived from several different scales. Thus the only way to play over something like 'Giant Steps' and still sound like you know what you're doing is to focus almost exclusively on chord tones. On the other hand, a track like 'Impressions' (Coltrane again) features only two chords and it changes between them at a far more relaxed pace, giving you more time to explore all of the notes of each scale, playing with that tension-and-release idea and so on.

Hopefully all of the above has helped to illustrate roughly what scales and chord tones are for. The ideas I've just outlined are pretty much applicable to all of the information in this book, so I'd urge you to think about them. Getting to grips with this stuff now will mean that you'll avoid any confusion later on. Now let's look at how it all translates onto the fretboard.

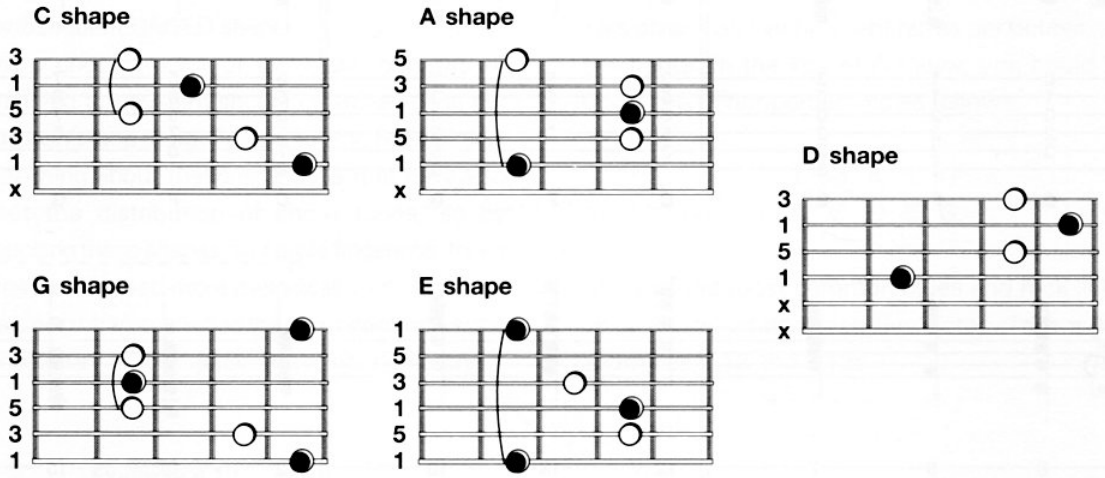
The CAGED System

So far, I've looked at the importance of knowing your scales and the chord tones lurking within them, and the CAGED system is a simple method of visualising these relationships on the fretboard. It's based on the

basic open chord shapes for C, A, G, E and D – hence the catchy name!

Before the true potential of these chords can be unlocked, they need to be adapted so that they'll work in any key. Obviously, in order to do this the open strings must be eliminated, so imagine using your index finger as a capo and playing the same chords an octave higher up the neck. They might look something like this:

Example 4.8



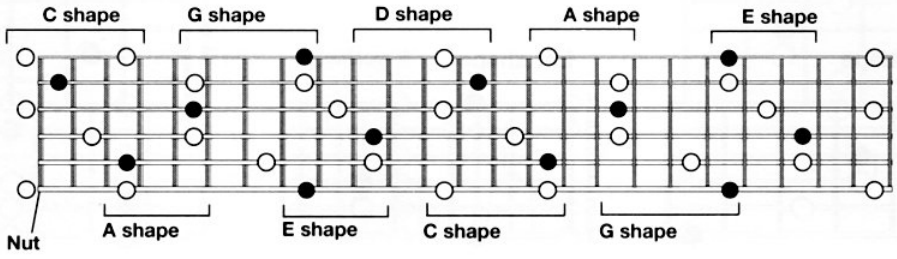
Some of these shapes are more practical than others – everyone loves the E and A shapes, but something like the G shape is harder to finger, so people often choose to steer clear of it. However, it's important to be aware of all five shapes to get any benefit from the CAGED system. Trust me!

The root notes in Example 4.8 are blocked in because they're particularly important. Even if you've seen all of these chord shapes before, you should still take a moment to ensure that you can find the root notes in each of them.

Note how the C shape shares its A-string root note with the A shape, the A shape shares its G-string root note with the G shape and so on. Thus these five shapes allow you to play any major chord in any part of the neck. Wherever your hand is, it should be able to find an accessible root note on at least one of the strings. This should be enough to suggest to you which of the shapes in the CAGED system is the most appropriate. For instance, if your index finger is hovering close to a root note on the G string, you can safely assume that the most convenient major-chord fingering will be a G shape.

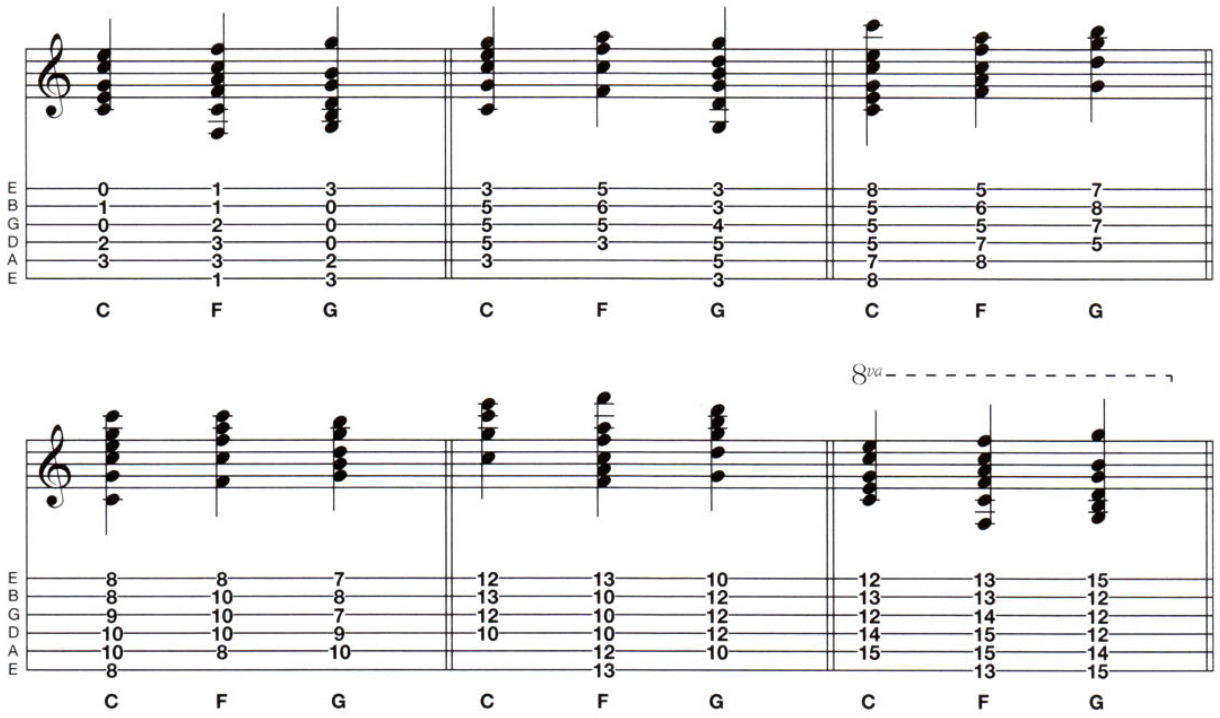
Example 4.9 below shows all the possible notes of a C major triad, all over the neck. If you scan each section in turn, you'll see why the CAGED shapes work and how they're linked together.

Example 4.9



The best way of getting a feel for this stuff is, of course, to try it out for yourself. You might take the I, IV and V chords from a major scale and try to voice them all over the neck. In fact, why not try it now before reading on?

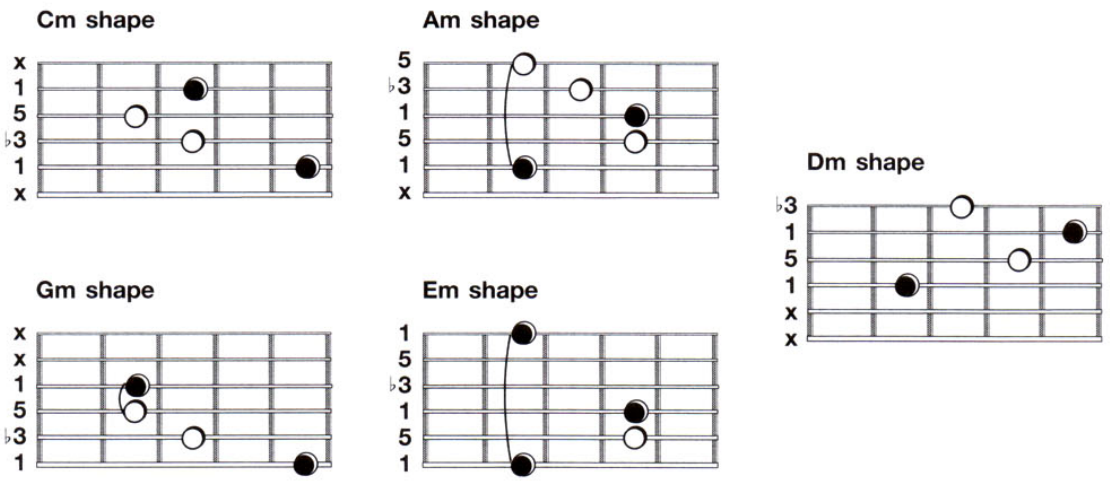
Example 4.10



Hopefully, your findings were in accordance with Example 4.10. If nothing else, you now know how to play 'La Bamba' in every part of the neck!

Well, that's the basic idea of the CAGED system. You can apply the same principles to other chord types, too. The minor CAGED shapes would look like this:

Example 4.11



These shapes are basically the same as the major shapes but with the thirds moved down a fret. (Remember, the formula for a minor chord is 1, ♭3, 5.) There are a couple of modifications, however – you can't move the B-string note from the G major shape down a fret, for instance, because you don't have enough fingers, so instead you simply avoid that string altogether – but the similarities are sufficient to take a lot of the pain out of learning these and all subsequent CAGED shapes.

From a chordal point of view, the benefits of understanding this system should be self-evident, but the fun doesn't stop there. From a soloing perspective, the great thing about these shapes is that they also represent the distribution of chord tones, so by superimposing these shapes over scale fingerings, those fingerings can be used more melodically. All of this will become clear when applied to the most common scale in the vocabulary of rock guitar: the minor pentatonic.

The Minor Pentatonic Scale

Whether you realise it or not, you already know the minor pentatonic scale. It's built up from the root note using the following pattern of tones and semitones:

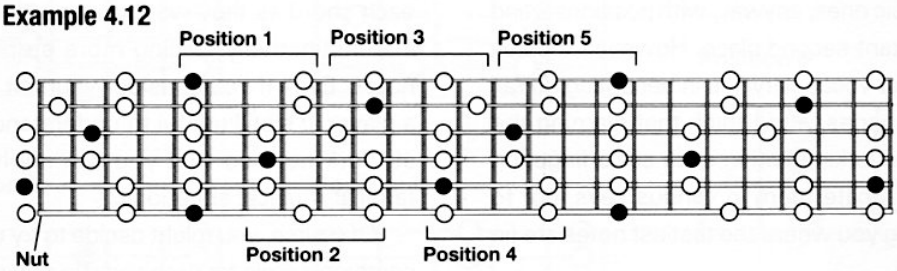
T 1/2 T T T 1/2 T

This gives you five different notes per octave, hence the name. In the key of A minor, you could break down the minor pentatonic as follows:

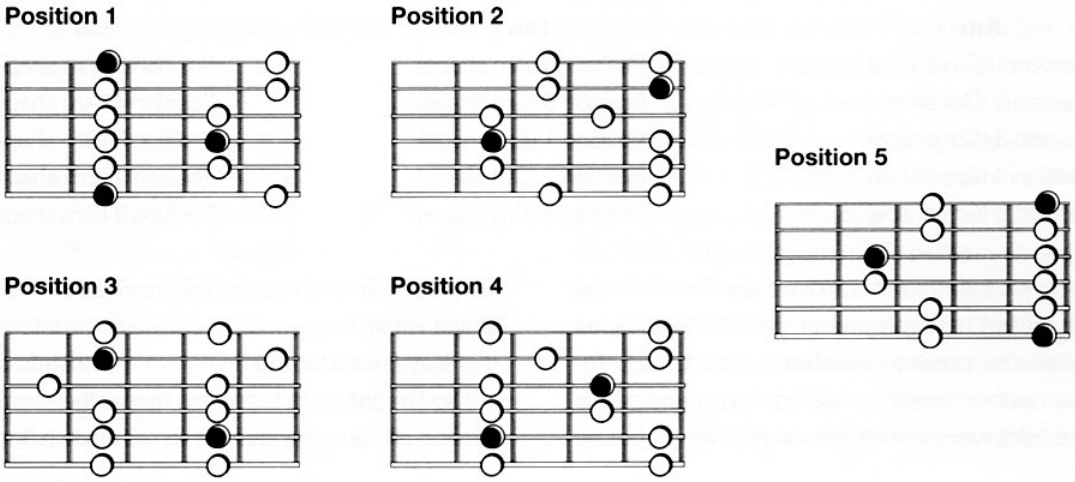
1	♭3	4	5	♭7
A	C	D	E	G

Many of the most common blues and rock licks are constructed using these five notes. Take a look at Examples 2.12 and 2.13:

Example 4.12



Example 4.13



Example 4.12 shows you the notes of A minor pentatonic, while Example 4.13 breaks down this information into convenient scale fingerings that work in any key. (As usual, I've blocked in the root notes.)

Most guitarists are comfortable with position 1 while far fewer are comfortable with all five positions. Why? For an explanation, try to spot the CAGED minor shapes hidden in each scale fingering. Hopefully, you'll notice the following:

Position 1 = Em shape
Position 2 = Dm shape
Position 3 = Cm shape
Position 4 = Am shape
Position 5 = Gm shape

Yes, it looks like position 1 is the firm favourite because it's the one based around the chord shape we know best! If the Devil has all the best tunes, it's also safe to say that position 1 has all the best blues licks – well, most of the classic ones, anyway, with positions 2 and 4 vying for a distant second place. However, the key to expanding your vocabulary lies in becoming *au fait* with all of the shapes, and I think that learning the 'skeleton' chords lurking within each scale fingering will help you to locate them in various keys, not to mention showing you where the tastiest notes are (ie the chord tones).

It's worth pointing out that you'll sometimes need to find more than one set of chord tones within a scale shape. If this sounds a little odd, consider the case of an A minor blues following the time-honoured I – IV – V progression. You can tackle this whole progression using exclusively the A minor pentatonic – and, indeed, many of your favourite players would do just that – but the notes that sound great over one chord won't necessarily work so well over the other two. Think of it in this way:

- The chord of A minor contains the notes A, C and E
- The chord of D minor contains the notes D, F and A
- The chord of E minor contains the notes E, G and B

Since the A minor pentatonic doesn't contain the notes of B or F, you effectively have only two chord tones at your disposal when you use this scale over D minor or E minor, and they're not necessarily the same as the chord tones that worked over A minor.

Many players can quite happily make this kind of decision by ear, hearing which notes 'agree' with each chord as they wander around the scale shape and instinctively placing more emphasis on those notes. Even if you consider yourself to be just such a player, it's still useful to understand the principles at work here so that you can apply them in less familiar musical situations.

Of course, you might decide to try using a different pentatonic scale for each chord in order to complement the progression that little bit more accurately. If you took this approach, the trick would be to finger the three different scales in the same part of the neck. More specifically, you'd have to group them like this;

Am	**Dm**	**Em**
Position 1 (Em shape)	Position 4 (Am shape)	Position 3 (Cm shape)
Position 2 (Dm shape)	Position 5 (Gm shape)	Position 4 (Am shape)
Position 3 (Cm shape)	Position 1 (Em shape)	Position 5 (Gm shape)
Position 4 (Am shape)	Position 2 (Dm shape)	Position 1 (Em shape)
Position 5 (Gm shape)	Position 3 (Cm shape)	Position 2 (Dm shape)

Try each row in turn from the above table. To memorise it, your best bet is to remember the CAGED shapes rather than the position numbers. Albert King, for instance, neither knew nor cared that many of his signature licks were based around position 2, but he would certainly have been able to visualise the D minor shape within those notes. Looking at the information in this way feels a lot more intuitive and 'hands on'.

You might want to try this more all-encompassing version of the same idea, which extends it beyond the

confines of the I – IV – V progression. Start with position 1 of the A minor pentatonic and keep moving up in fourths, following A minor with Dm, Gm, Cm, Fm, B♭m, E♭m and so on, keeping your hand in the same part of the neck the whole time until you come back to A minor 12 keys later. (You'll notice that this *cycle of fourths* is basically a backwards version of the cycle of fifths described in the section on key signatures.) This sort of exercise really helps your ability to tackle key changes smoothly, so do give it a go.

The Major Pentatonic Scale

Now would be a good time to move onto a new scale, the major pentatonic. As you'll have divined from the name, the major pentatonic once again features five different notes per octave, but this time the pattern of intervals goes like this...

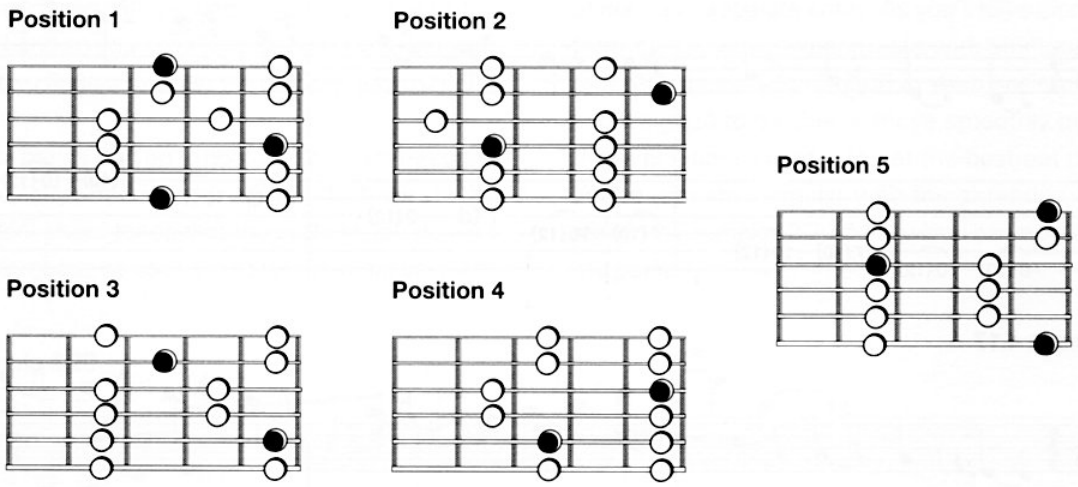
T T T½ T T½

...which gives the following formula:

1 2 3 5 6

As you can tell from the above formula (or indeed from the scale's helpful name), these notes are designed to be used over major chords, and the five fingering patterns look like this:

Example 4.14



In a manner eerily reminiscent of the minor pentatonic shapes, these scales fingerings contain the following CAGED major chord shapes;

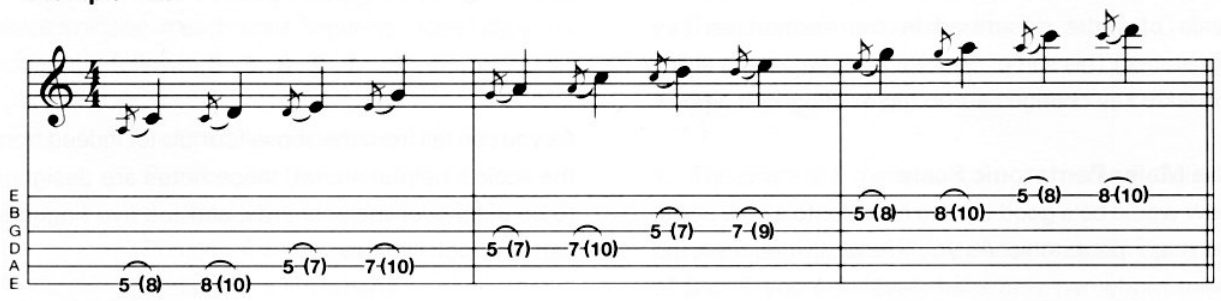
Position 1 = E shape
Position 2 = D shape
Position 3 = C shape
Position 4 = A shape
Position 5 = G shape

There's another point of similarity between these scales. You might have noticed that position 1 of the major pentatonic is the same as position 2 of the minor pentatonic and so on, so the only new information you need to learn here is that the root notes are different.

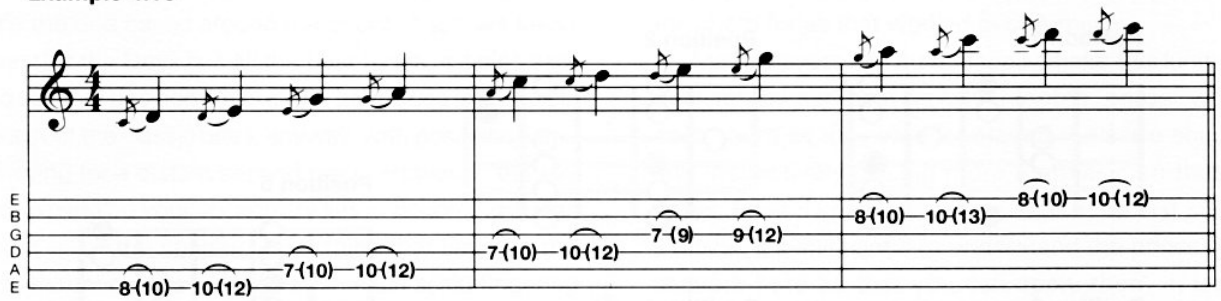
Consider this: the notes of C major pentatonic are C, D, E, G and A, while the notes of A minor pentatonic are A, C, D, E and G – ie they're exactly the same! In practical terms, this means that you can find the correct major pentatonic scale over any chord by taking the (probably more familiar) minor pentatonic and moving it down three frets. You would be well advised to commit this relationship to memory, because the basic principle at work here will crop up again when dealing with other, more complex scales. In theory terms, you would say that A minor is the *relative minor* of C major.

If you think of the minor pentatonic as the source of your vocabulary of blues/rock clichés, the major pentatonic will most likely remind you of country licks. In both cases, your goal is to learn the shapes in such a way that you can improvise with them musically, so look for the string-bending potential in each shape. In the C major pentatonic positions, for instance, you'll find that the following bends are all theoretically possible:

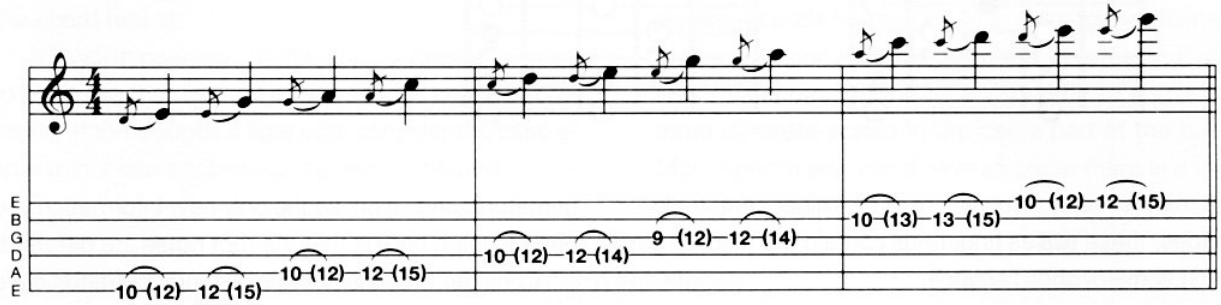
Example 4.15



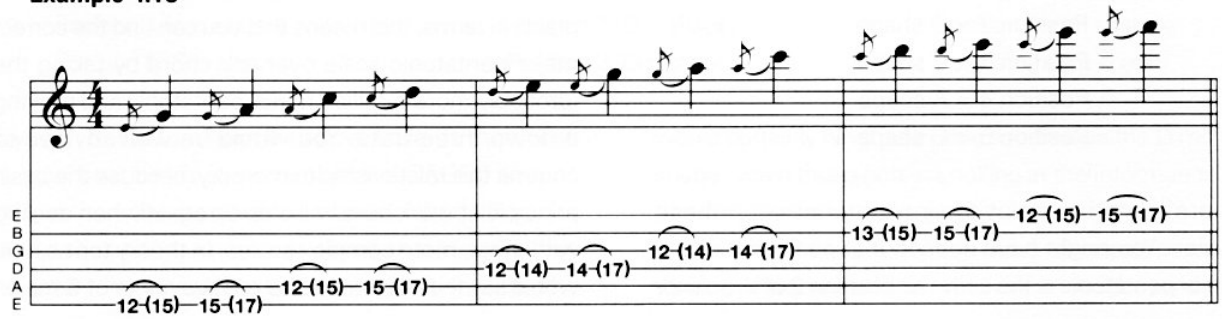
Example 4.16



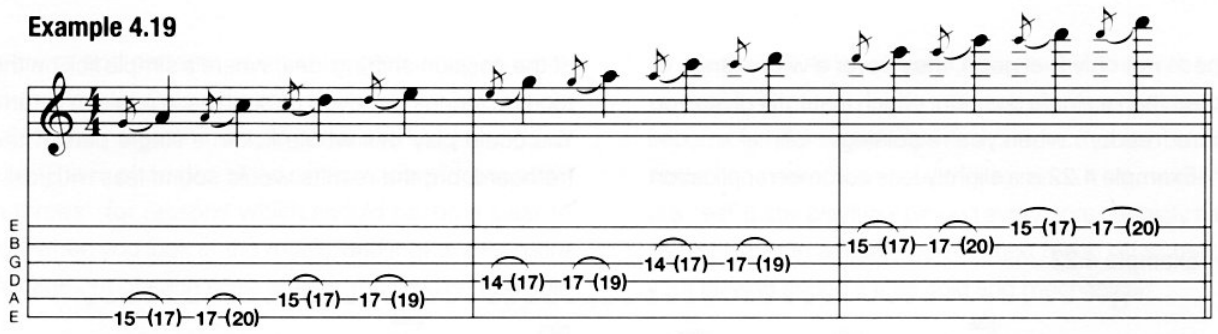
Example 4.17



Example 4.18



Example 4.19



The above illustrates how you could bend each note up to the next note in the scale. (You should always have a target pitch when you bend a string in order to obtain the most musical results.) In practice, your favourite bends in Example 4.16 will probably be the notes on the G and B strings, because they share the following features:

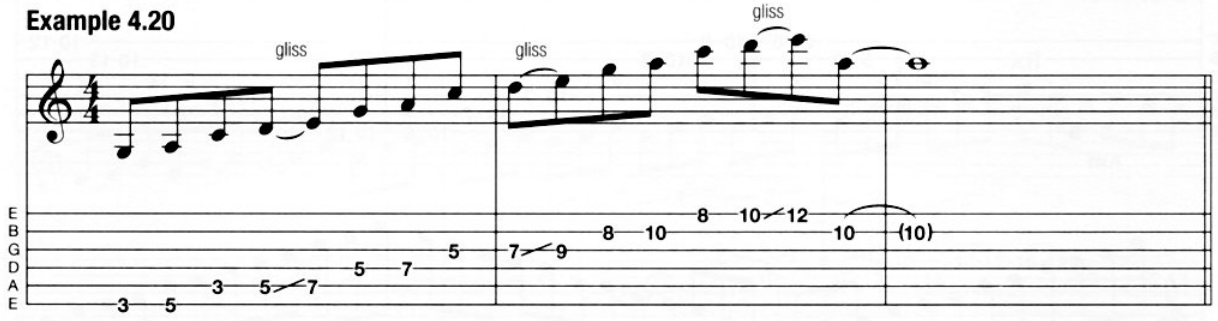
- You're fretting with the ring-finger/little-finger part of your hand so you can reinforce the bend with your first two fingers, making the process less painful.

- These bends lead up to chord tones, so they sound particularly effective over a C chord. These are the 'hidden' chord tones that the scale shape doesn't tell you about, so you have to find them for yourself!

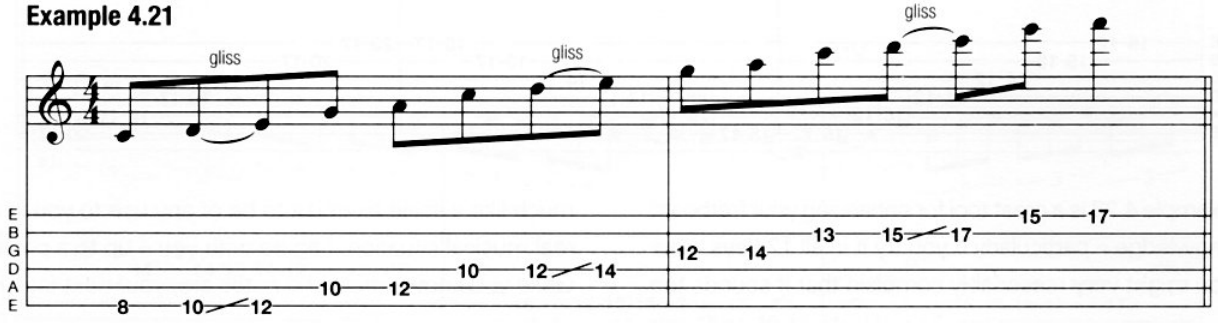
I urge you to look play around with all the possible bends in each shape, and decide for yourself which ones sound and feel best. Naturally, one way to spice up your pentatonic playing would be to try incorporating some of the less obvious bends – but first, you need to know where the most obvious ones are!

The other avenue you should explore is the idea of linking these shapes together, rather than thinking of each as a separate entity. As you'll have discovered from the previous experiments with string-bending, different things sound good in each scale position, and it's good to be able to move smoothly between these positions in order to get the best out of each. You're probably familiar with the extended shapes shown in Examples 2.20-2.22, which serve to illustrate my point:

Example 4.20



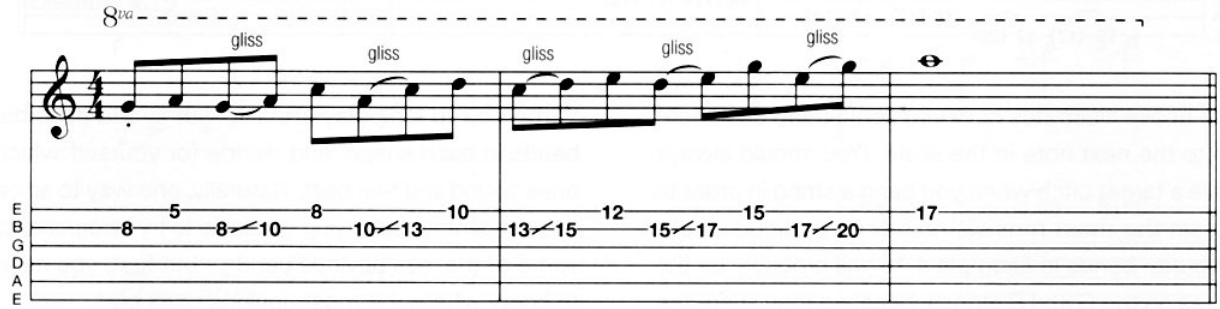
Example 4.21



These not only feel good, they cover a wider range of notes than a single position, which instantly gives you more freedom when you're soloing.

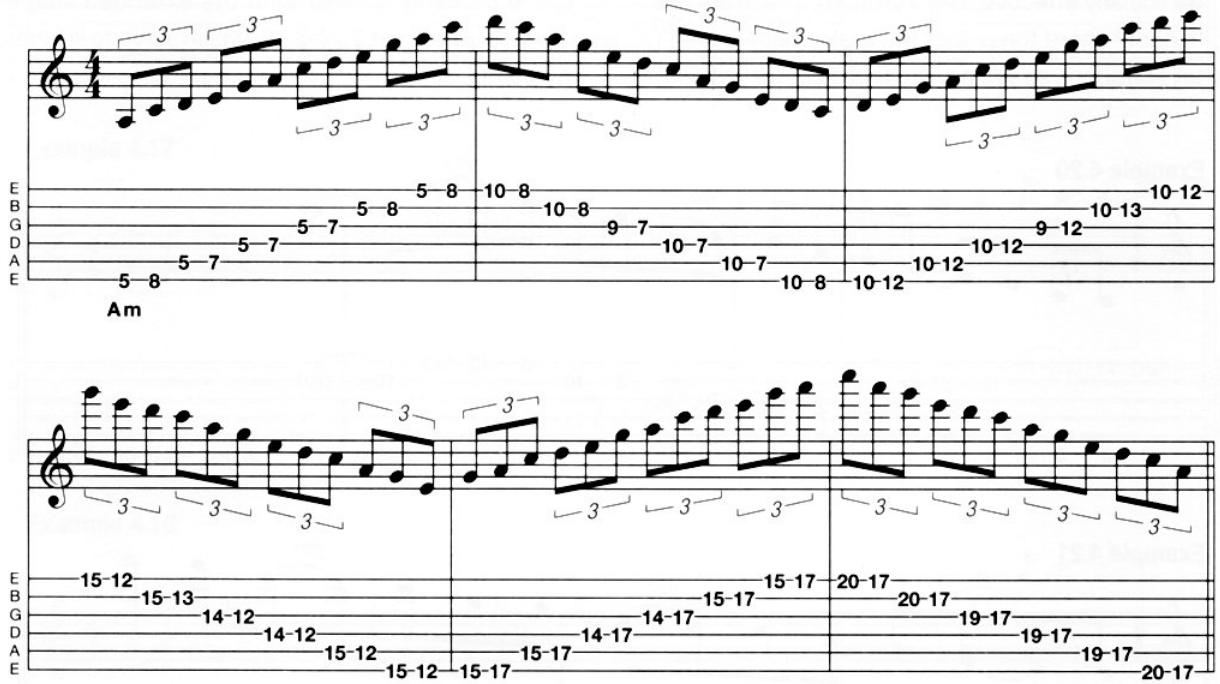
Example 4.22 is a slightly less common application of the position-shifting idea, where a simple lick on the top two strings is moved through each position in turn. You could play this whole lick in a single part of the fretboard, but the results would sound less musical.

Example 4.22



It's a good idea to take all of the blues licks you know and refinger them so that you can play the same notes in each of the five positions. You'll find that they have a slightly different tone and feel in each. With this in mind, why not use Example 4.23 as an efficient way of teaching yourself how the shapes link up?

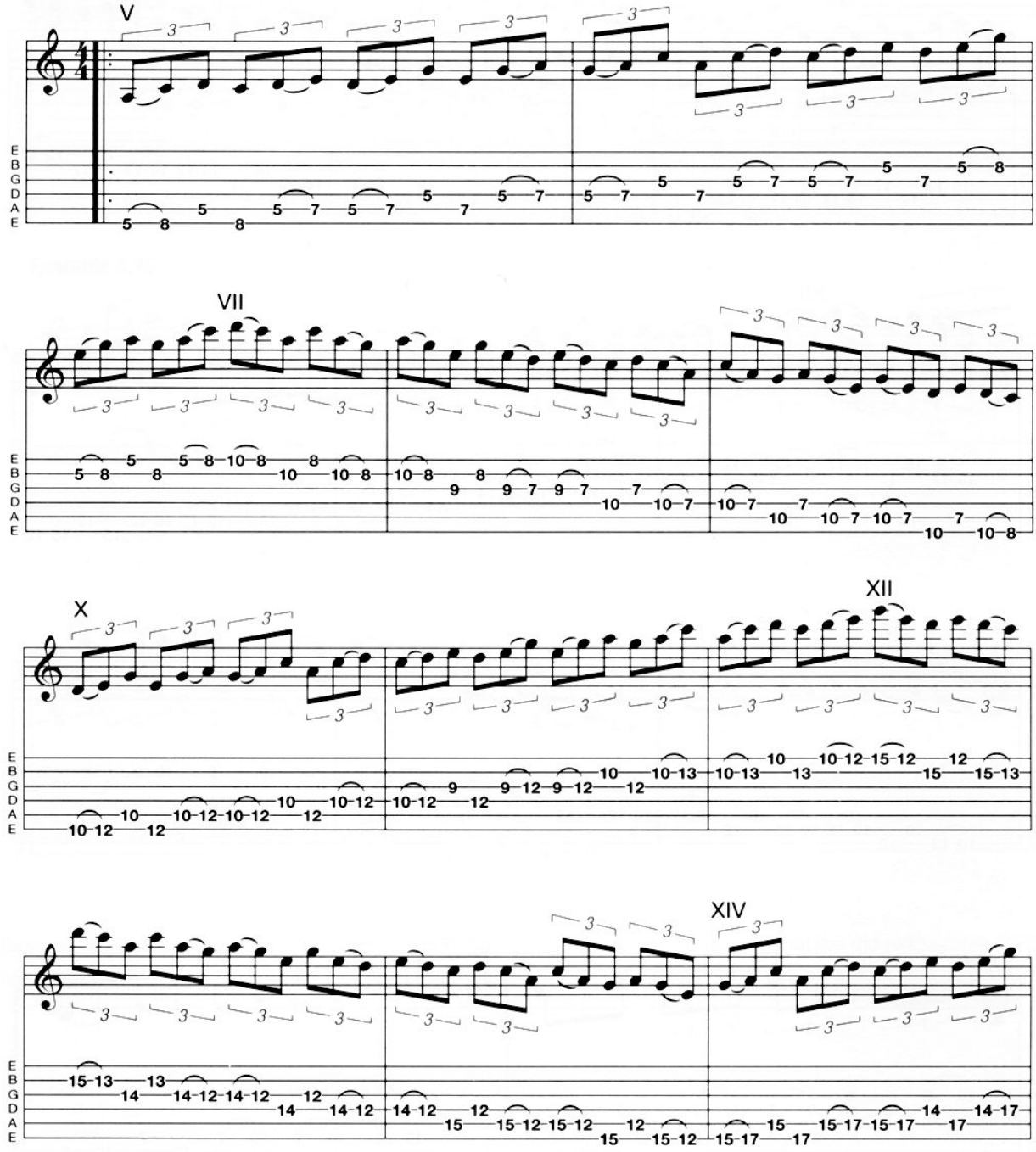
Example 4.23: Connecting the pentatonic shapes

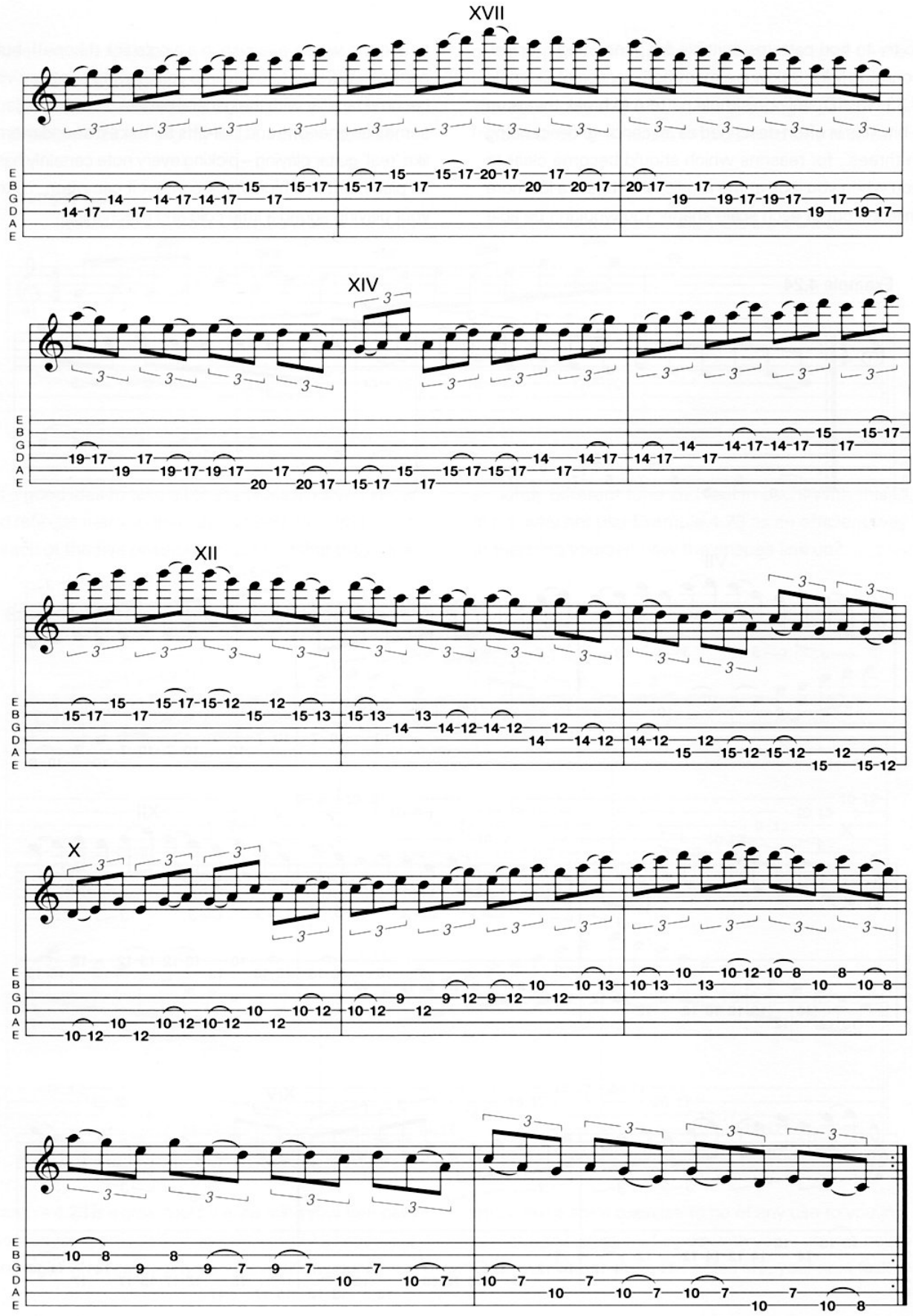


Example 4.23 is a great tool for enhancing your fretboard knowledge – particularly if you try it in all 12 keys – but you might very reasonably complain that it sounds too much like a scale exercise to be of any use to you in a real musical situation. I agree with you – up to a point. Once you know where the notes are, your next task is

to try to find patterns suitable for generating musical-sounding licks. Below is a mammoth version of Example 4.23 which uses one simple pattern to break things up a bit. This is often described as 'ascending/ descending in threes', for reasons which should become clear to you when you look at the music, and it gets a lot more mileage out of each scale shape. You wouldn't be able to use the whole exercise in a single lick (I hope!), but parts of it will start to creep into your playing once you've become familiar with the general pattern. I've also added some hammer-ons and pull-offs to make it sound more like 'real' guitar playing – picking every note certainly has its place, but in a blues/rock context it can often make your playing sound a little cold and mechanical:

Example 4.24

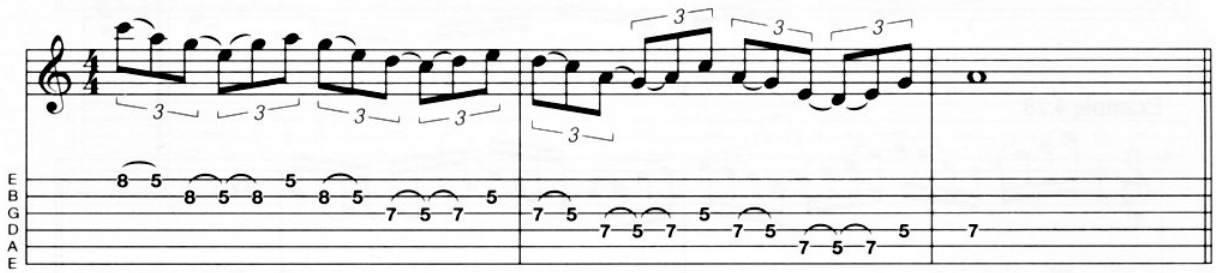



XVII
XIV
XII
X

Phew! The next group of examples illustrate some other patterns you might like to apply to each pentatonic shape. You'll see that I've only written them out in one position, to save space, but you'll get the general idea:

Example 4.25 inverts alternate groups of three, while Example 4.26 inverts only the group of three at the end of each bar. Hopefully, these are starting to sound more like real licks!

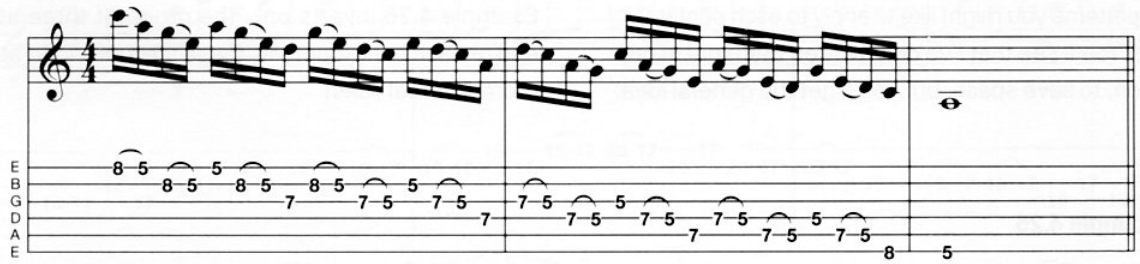
Example 4.25



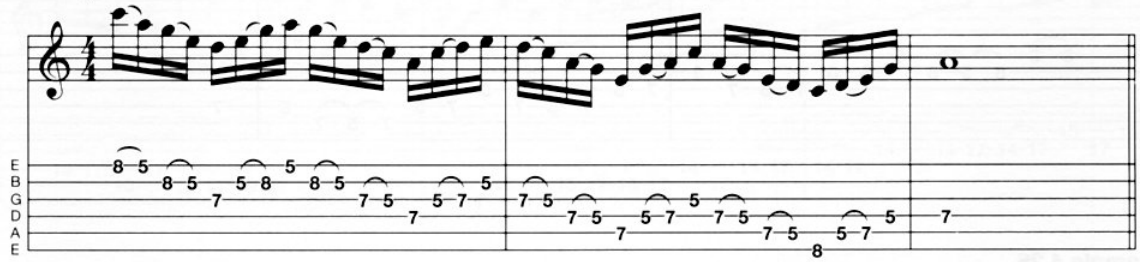
Example 4.26

Example 4.27 below uses a descending-in-fours motif, and Example 4.28 inverts alternate groups of four. This should remind you of what we did to Example 4.23 to generate Example 4.24:

Example 4.27

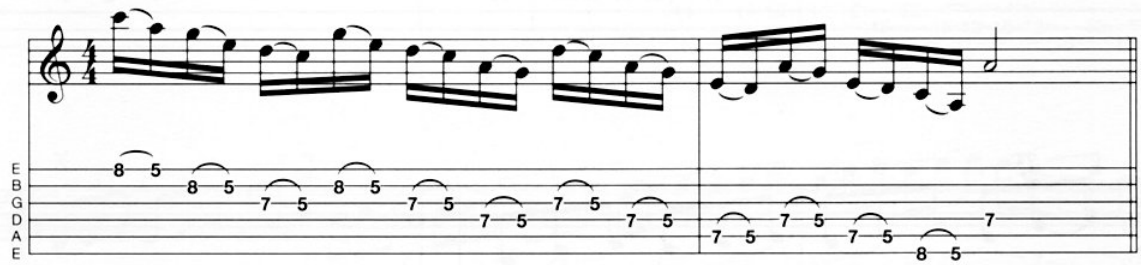


Example 4.28



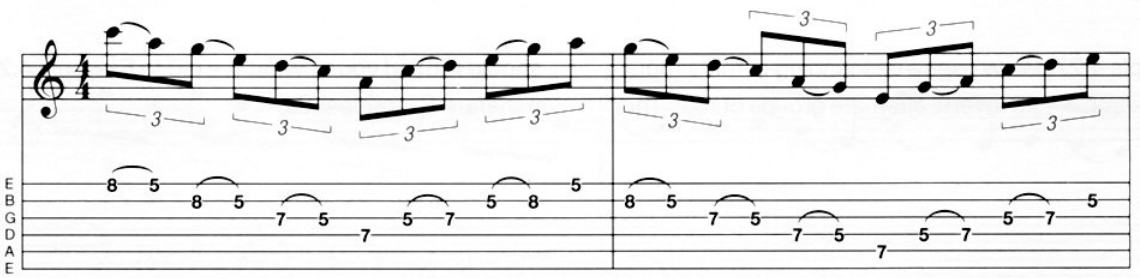
Example 4.29 descends in groups of six, missing out the more difficult groups, and maintains the earlier theme of playing four notes in each beat. This six-over-four idea creates an interesting rhythmic effect:

Example 4.29



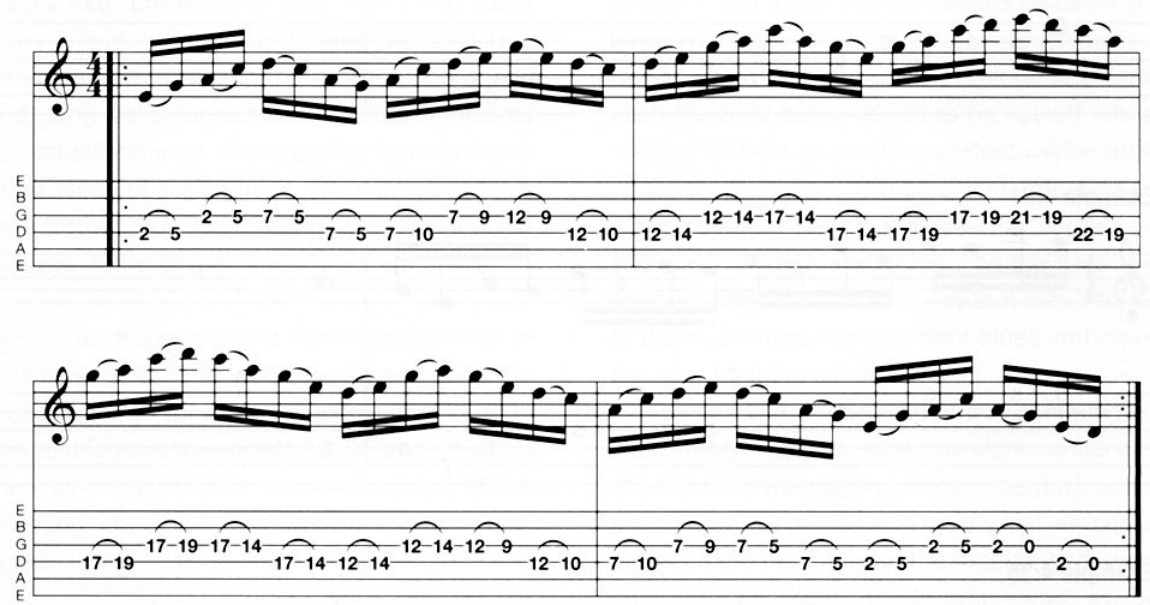
Example 4.30 reverts to the earlier triplet feel, with groups of six that alternate between ascending and descending:

Example 4.30



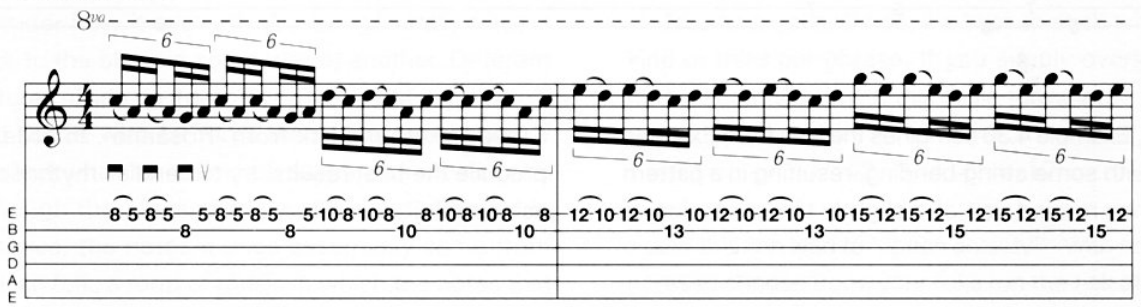
Now let's go back to the earlier theme of joining up the positions and see what kind of music you can make. Example 4.31 takes a simple four-note pattern on the middle two strings and moves it through each position in turn, which makes for a great way to travel smoothly between seemingly unconnected parts of the fretboard:

Example 4.31



Example 4.32 below doubles up the first two notes in order to create a sextuplet feel. This one sounds good at high speeds, and you should try it on other pairs of strings, too:

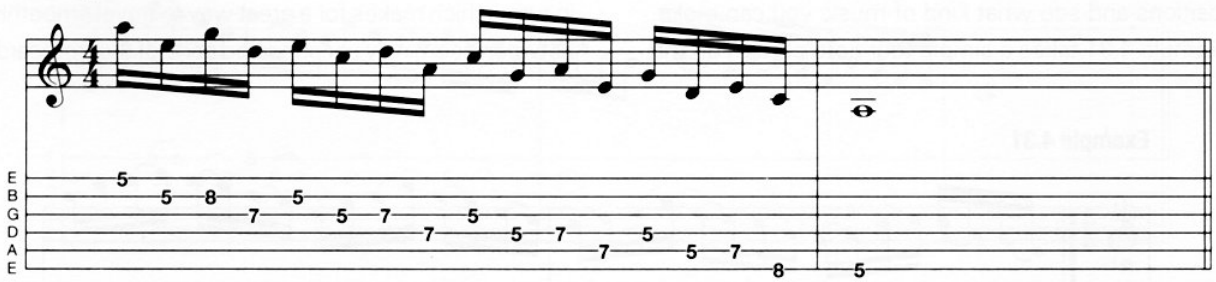
Example 4.32



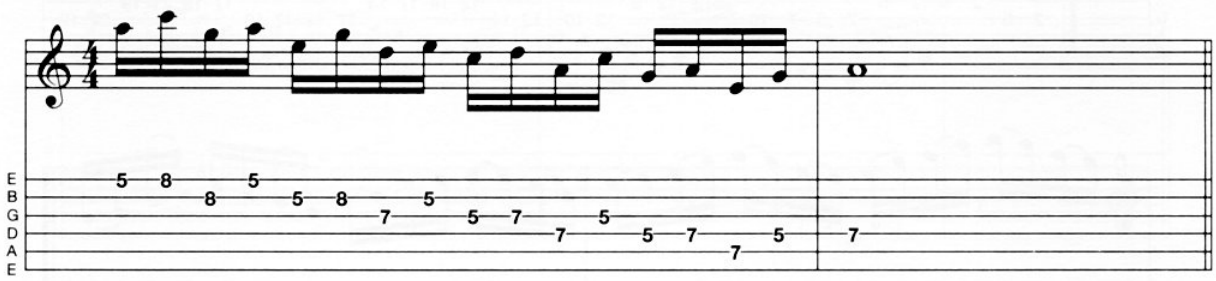
The next three examples explore the idea of skipping notes. This instantly creates an interesting wide-interval sound in your licks, which really helps break the monotony of playing lots of adjacent scale notes. They're a bit harder to play, but that's the whole point of practising them!

Example 4.33 uses an 'down two, up one' pattern, while Example 4.34 turns things round by using an 'up one, down two' motif – it's basically the same idea, but the results sound different because the main beats are falling at different points in the pattern. Example 4.35, meanwhile, is based on a more ambitious 'up three, down two' pattern. Trying to achieve complete separation between the notes is tricky, but it's worth persevering as ideas like this can generate some head-turning licks!

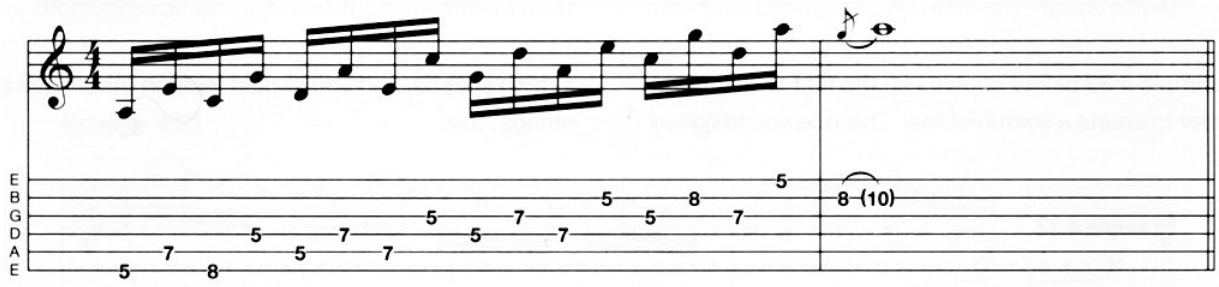
Example 4.33



Example 4.34

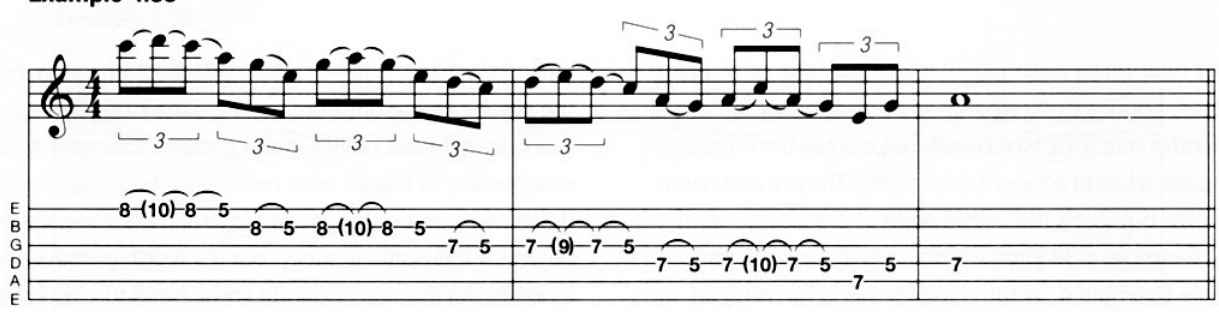


Example 4.35



Finally, Example 4.36 combines the idea from Example 4.27 with some string-bending, resulting in a pattern that may remind you of a slightly tamer version of Steve Lukather's lick from 'Rosanna'. In order to produce the best results, try to bend as rhythmically as possible:

Example 4.36



Once you know your pentatonic shapes and the underlying chord shapes for each, you could explore the following ideas:

- The sort of chordal playing you hear on Hendrix tracks like 'Little Wing' and 'The Wind Cries Mary'. This is based on holding down a few strings' worth of the appropriate CAGED shape and using the other pentatonic notes in the area as embellishments. Once you've learned some other types of scale shape, you can extend this idea further, but you'll find that there's a lot of mileage in the shapes already covered here.
- Mixing up the major and minor pentatonics in your blues solos. This works best over a *dominant blues* context – for example, a dominant blues in A would feature the chords A7, D7 and E7 rather than minor chords. (For a classic example of this in action, check out Eric Clapton's 'Crossroads' solo.)

You might well be puzzled by the concept of combining major and minor scales over a single chord, and frankly your concerns are justified. Based on the theory covered so far, doing this makes no sense at all. But wait, I can explain!

If you think of any genre of popular music and consider how it evolved, you can generally trace it back to the blues in some way or another. Different cultures divide up the octave in different ways (you'll find scales with far more than 12 notes in them if you look into the realms of, say, Indian music), and although the blues might well have developed in America, the notes it uses essentially come from African folk, a form of music in which the notes that were considered to sound 'in tune' weren't necessarily identical in pitch to the notes you'll find on a piano keyboard. Thus our conventional music theory might well dissect blues licks and conclude that they are constructed from the minor pentatonic, but this is an approximation of the truth. Originally, the flat third would have sounded slightly sharper than it does today in our Westernised version of the scale and the fifth would have been slightly flatter.

You can hint at the sound of the original flat third by bending the thirds in the pentatonic scale shapes ever so slightly sharp. If you play through some minor pentatonic shapes, squeezing all the flat thirds slightly sharp (no more than a quarter of a tone, please!), you'll find that the results instantly sound bluesier and somehow more authentic. (When you're trying this out, pay particular attention to the end of each flat third note – it has to be cut off while it's still slightly bent, or the whole effect will be spoiled.)

So there you go. The bluesiest-sounding thirds are actually somewhere between the 'correct' minor and major thirds available to us on the fretboard. In addition, it's probably safe to say that they'll be closer to the major third in a dominant blues and closer to the minor third in a minor blues.

The bending solution is one way of hinting at this major/minor ambiguity, while the aforementioned idea of combining the major and minor pentatonic scales achieves similar results, as it means that you can swap between the flat third and the regular third, with the 'average' of these thirds perceived as being somewhere in between the two. This tactic is best reserved for dominant blues progressions – if you're playing over a straight minor chord, the major pentatonic will sound incongruously happy (ie 'wrong'), but if you're playing over a seventh chord, both the major and minor pentatonics are worth a try.

NB: As a general rule, it's best to stick with one kind of third per phrase. If you simply overlap the notes, you end up with this scale formula...

1 2 ♭3 3 4 5 6 ♭7

...and this can lead to 'option anxiety' – with so many notes to choose from, your licks run the risk of losing that distinctive pentatonic texture. (On the other hand, that might be just the effect you've been looking for. A lot of Paul Gilbert's zanier blues licks draw on this combination of scales, for instance.)

Bear in mind once again that these ideas won't work equally well over every chord in your average blues progression, so you have to let your ears be the judge of these things. In an A dominant blues, the chords are constructed as follows...

A7: A C♯ E G
D7: D F♯ A C
E7: E G♯ B D

...and, as we have seen, the relevant pentatonic scales contain the following notes:

A minor pentatonic: A C D E G
A major pentatonic: A B C♯ E F♯

If you assess the merits of each of these scales over each chord in turn, you might well conclude the following:

- Over A7, both pentatonics work very nicely, especially if you remember to wring that microtonal bluesiness out of the C in the minor pentatonic by bending it slightly sharp.
- Over D7, the A minor pentatonic works very well, although you might find the sound of the G a little tense since it's so frustratingly close to the F♯ in the chord (and for this reason it's best used in passing, methinks). The A major pentatonic can also be used, but you'd be well advised to avoid the C♯ altogether as it conflicts horribly with the C in the chord.
- Over E7, the A minor pentatonic works, by and large, but you'll find the C a little tense (there's a B in the chord, which is perhaps a little too close for comfort) and you might well feel the urge to bend the G slightly sharp. (Look at the notes in the E7 chord. Can you see why bending the G would work?) The A major pentatonic is less successful over this chord of V as the C♯ and A are perilously close to E7 chord tones and the F♯ sounds a little random.

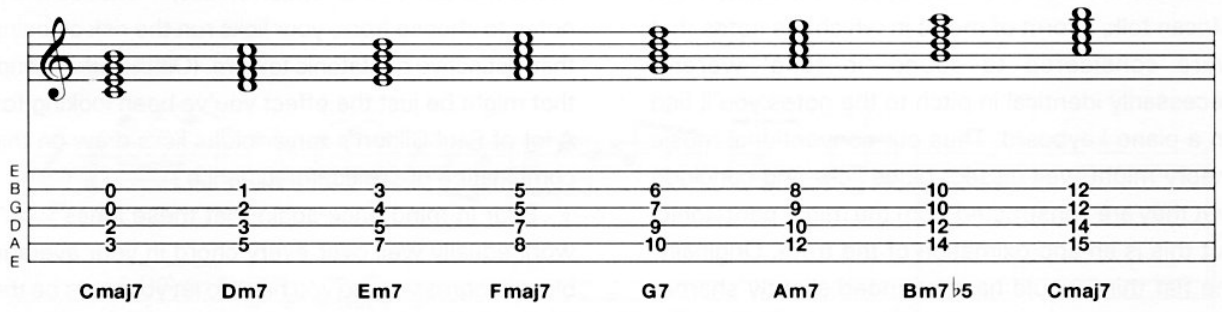
Don't worry about the cold, scientific nature of the last few pages. I know that this isn't exactly the most enjoyable way of approaching playing the blues, but it demonstrates some general principles that will help you to select the best scales for any chord progression. I picked the blues as a reference point purely because it's so familiar. Now, let's take a break from this blues by numbers and take a more in-depth look at chords.

Seventh Chords

You might have been a little confused earlier when I informed you that the chord of A7 contained the notes A, C♯, E and G but made no attempt to explain why this should be so.

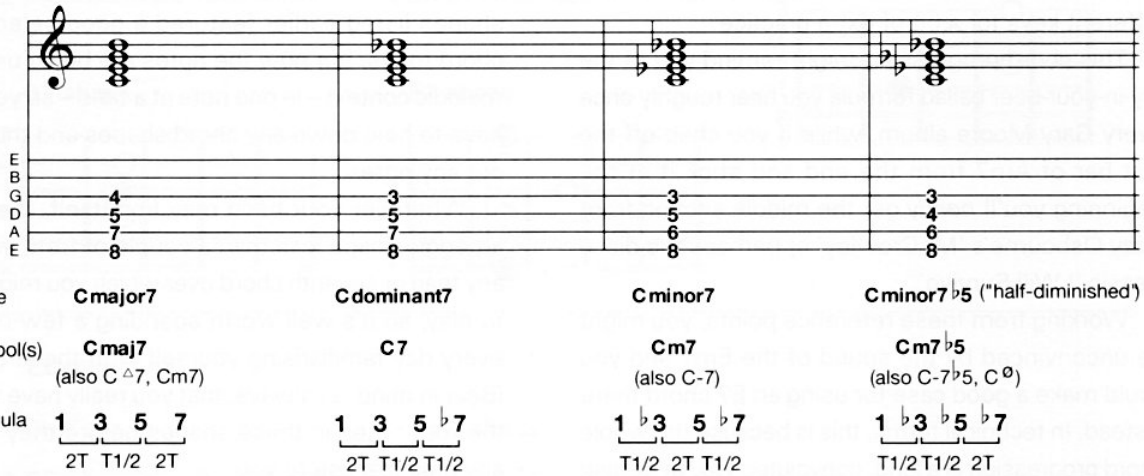
OK, here's the deal. To construct a major triad, the first, third and fifth notes of the major scale were isolated, and by moving them up diatonically, two other types of triad were found, the minor and diminished. The logical extension of this idea is to start with the first, third, fifth and seventh of the scale and to move this aptly named *seventh chord* up through the scale, as before. This is what happens:

Example 4.37



Not the easiest of fingerings, I know, but in theory terms these are the simplest versions of the various seventh chords. You'll note that there are now four different kinds of chord. Here's how their formulae compare:

Example 4.38



Name	**C major7**	**C dominant7**	**C minor7**	**C minor7♭5** ("half-diminished")
Symbol(s)	**Cmaj7** (also C△7, Cm7)	**C7**	**Cm7** (also C-7)	**Cm7♭5** (also C-7♭5, Cø)
Formula	1 3 5 7 2T T1/2 2T	1 3 5 ♭7 2T T1/2 T1/2	1 ♭3 5 ♭7 T1/2 2T T1/2	1 ♭3 ♭5 ♭7 T1/2 T1/2 2T

You could generalise this pattern of chords as follows:

I (maj7) ii (min7) iii (min7) IV (maj7) V7 vi (min7) vii (min7♭5)

Just as each type of triad had its own distinctive sound, so do the various seventh chords:

- Major-seventh chords have a sweet, 'cheesy' sound, as used extensively in Hollywood soundtracks whenever lurve creeps into the plot. C maj7 contains the notes C, E, G and B, so you might expect the B and C to conflict with each other (they're only a semitone apart), but as it turns out, these chords sound very pleasant.

- Dominant-seventh chords are the ones normally referred to as plain 'seventh chords'. They sound relatively happy (as you would expect – there's a major triad in there, after all), but they also have a slight tension about them, as if they're pulling you towards a major chord a fourth higher. If you look at the gap between the third and the flat seventh, you'll be able to see where this tension comes from.

- Minor-seventh chords basically offer you a slightly more jazzy and sophisticated version of the sad quality found in minor triads. They sound relatively stable, so you could jam over one for hours without fear of reproach.

- Half-diminished chords (m7♭5) are certainly the least common of the seventh chords looked at so far. They sound more tense than dominant chords, but the two chord types are similar in the sense that they both contain a tension that seems to pull you towards a chord a fourth higher up.

You should try these chords out, but first we're going to have to do something about those fingerings! Examples 4.37 and 4.38 were almost unplayable, so over the page are some less painful fingerings based around the CAGED system. Note how they compare with the standard triad-based shapes shown earlier.

To get a feel for how you might apply these chords in a playing situation, I would recommend taking the following progression (spending one bar on each chord) and playing the whole thing in various parts of the neck, as here:

Dm7 – G7 – Cmaj7 – Fmaj7 – Bm7♭5 – Em7 – Am7 – Am7

This should give you a feel for the sounds of these chord voicings. In essence, the progression uses all of the chords from Example 4.37 rearranged in a cycle of diatonic fourths. Try the whole thing in a few different keys for a bit of extra practice.

This chord progression might remind you of the cry-in-your-beer ballad formula you hear roughly once every Gary Moore album, while if you chop off the last bar of Am7 from the end and stick it at the beginning you'll *nearly* get the middle section from Ozzy Osbourne's 'Mr Crowley' or perhaps the disco classic 'I Will Survive'.

Working from these reference points, you might be unconvinced by the sound of the Em7 and you could make a good case for using an E7 chord there instead. In technical terms, this is because the whole chord progression is a long, convoluted way of getting to the key of the song – A minor – and it would be nice to have a little extra tension leading up to this last chord, just to make sure the listener appreciates it when it finally comes. *Creative Guitar 2* looks at melodic and harmonic minor scales and you'll meet some scales which were designed purely so that you could do this without breaking any rules, but in the meantime you should probably stick with the diatonic chords produced by the major scale.

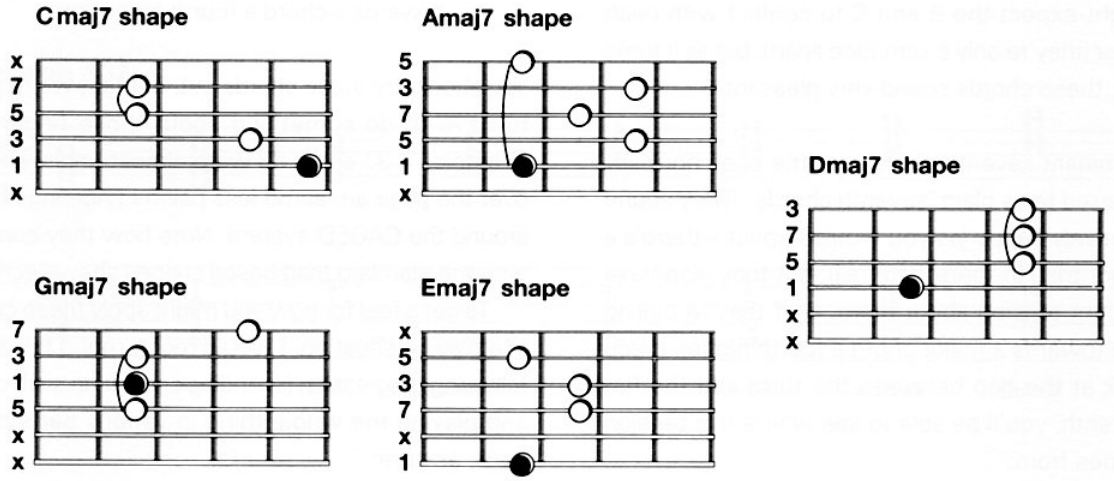
Arpeggios

Lots of homework in this section! The following examples demonstrate some arpeggio shapes for the various types of chord looked at so far. Basically, these represent all of the available chord tones for each part of the neck in turn. The CAGED chord shapes listed earlier featured a good selection of chord tones, but now the notes are being used in a melodic context – ie one note at a time – so you don't have to hold down any chord shapes and thus miss out any notes.

Wherever your hand may find itself, there's an arpeggio shape less than a couple of frets away for any triad or seventh chord over which you might have to play, so it's well worth spending a few minutes every day familiarising yourself with these shapes. (Bear in mind, as always, that you really have to learn the root notes in these shapes before they'll be of any practical use to you.)

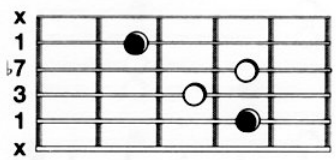
NB: You may disagree with some of the fingering listed here. Perhaps you've already encountered some slightly different versions of these shapes. (For instance, you might prefer to play the second-lowest note from the first major-triad arpeggio shape on the low E string, four frets above the root, and duplicate this note on the high E string for a bit of extra range.) This is absolutely fine – I won't be offended! Trying to find alternative fingerings can

Example 4.39

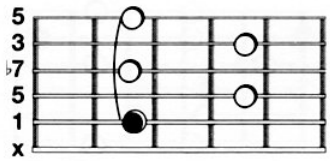


Example 4.40

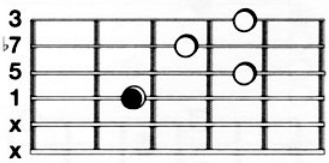
C7 shape



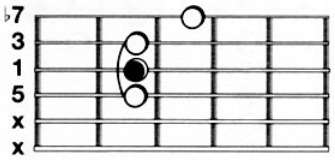
A7 shape



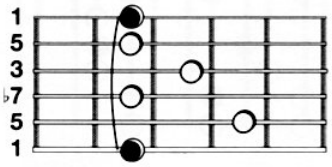
D7 shape



G7 shape

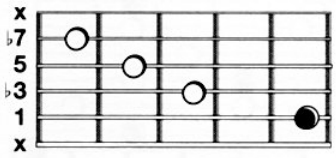


E7 shape

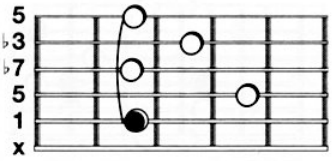


Example 4.41

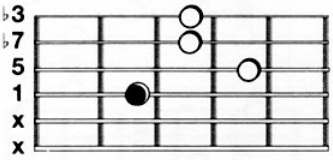
Cm7 shape



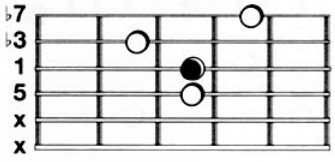
Am7 shape



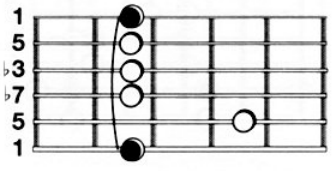
Dm7 shape



Gm7 shape

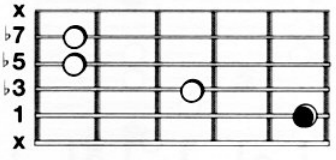


Em7 shape

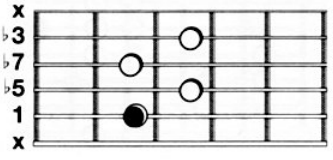


Example 4.42

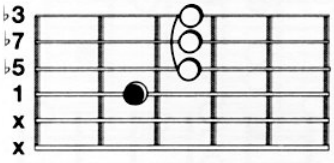
Cm7♭5 shape



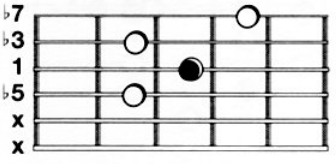
Am7♭5 shape



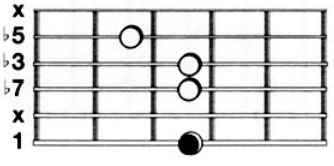
Dm7♭5 shape



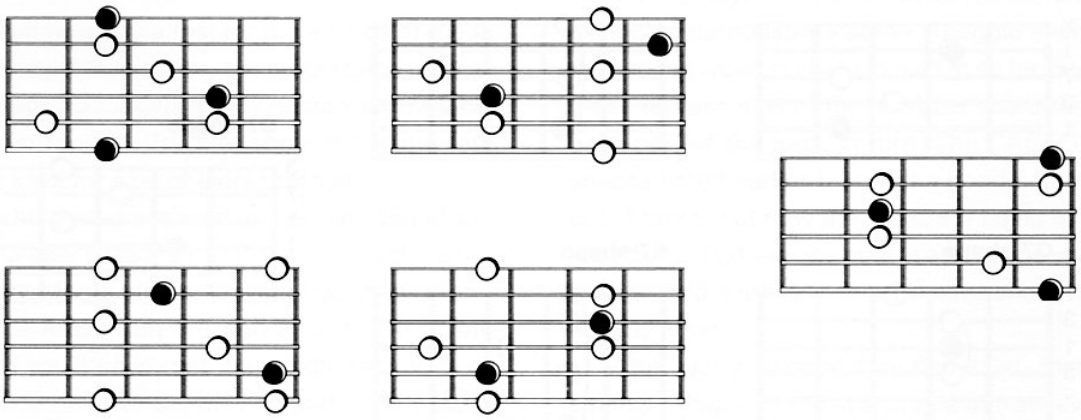
Gm7♭5 shape



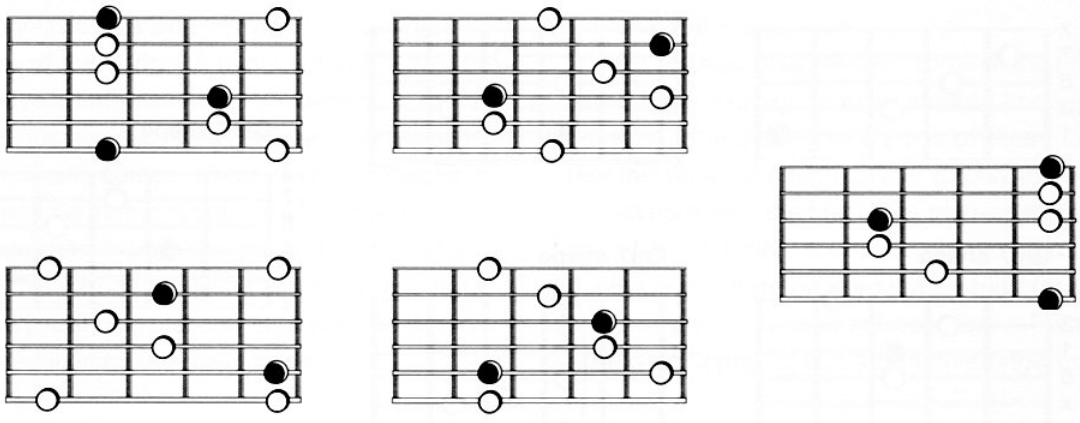
Em7♭5 shape



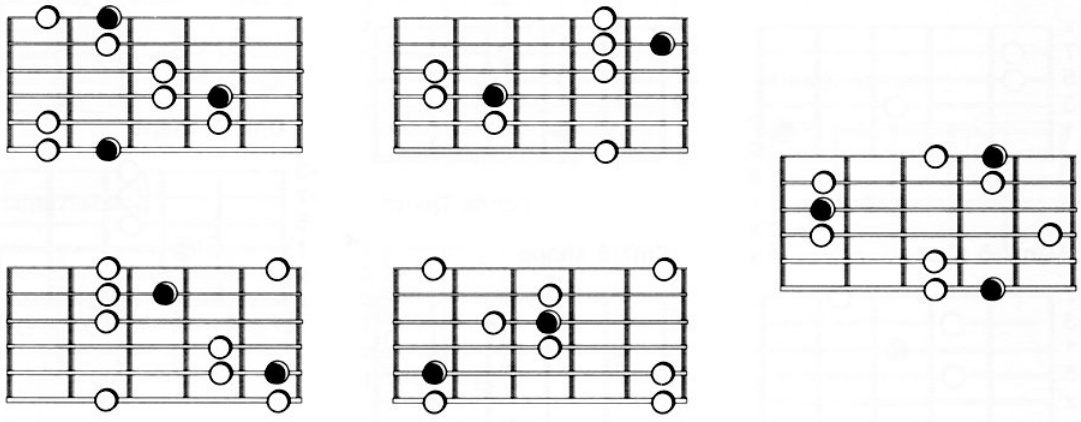
Example 4.43: Major arpeggios



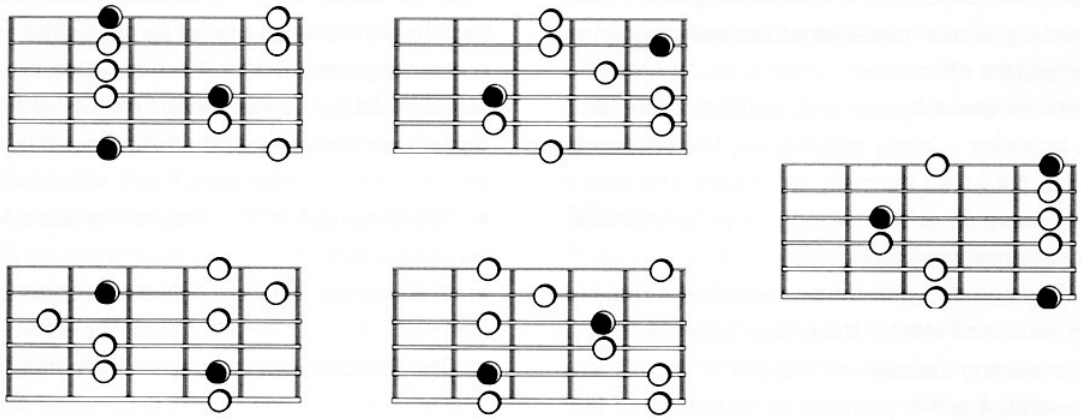
Example 4.44: Minor arpeggios



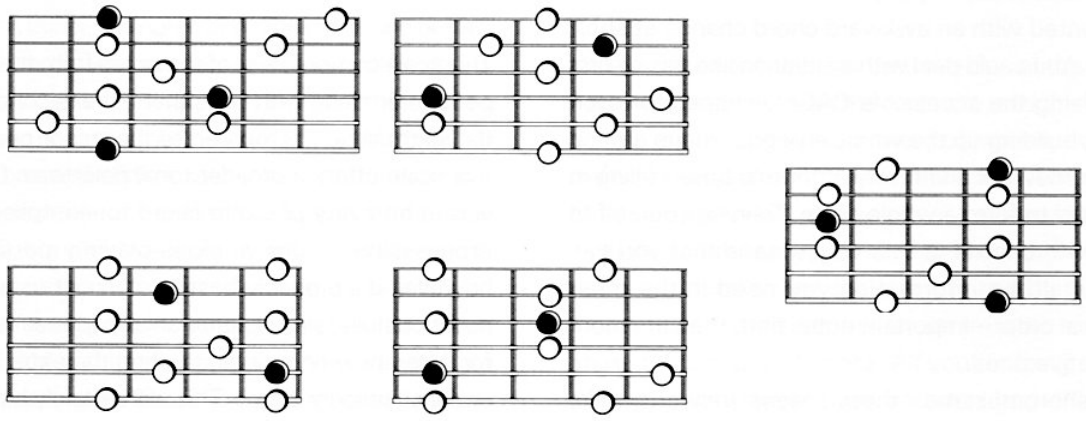
Example 4.45: Major-seventh arpeggios



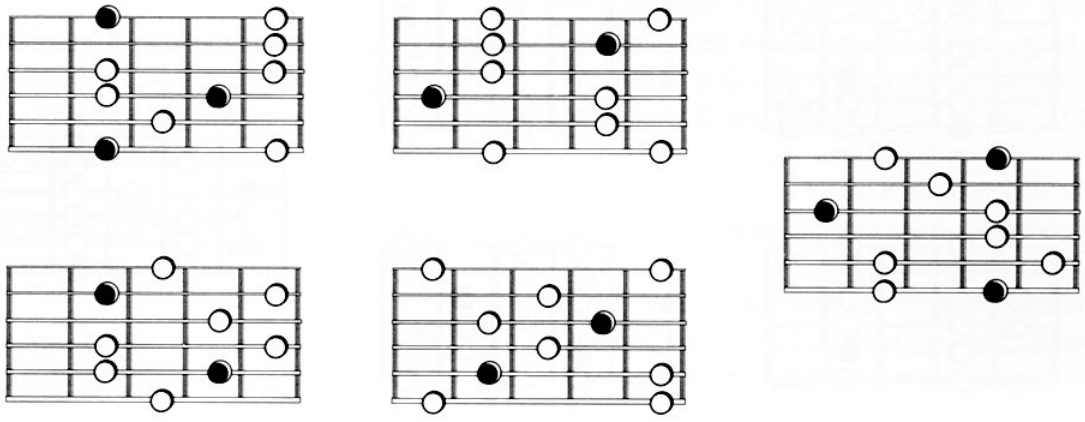
Example 4.46: Minor-seventh arpeggios



Example 4.47: Dominant-seventh arpeggios



Example 4.48: Min7♭5 arpeggios



only serve to improve your knowledge of the fretboard, and any shape is valid as long as it keeps your fretting hand in one area of the neck and uses all your fingers efficiently.

Those of you who are less pedantic shouldn't worry, however – in my experience, the shapes in Examples 4.43-4.48 normally work well, and they'll certainly serve as good starting points for your first forays into arpeggio playing.

So how can you use these shapes in a real-life playing situation? Well, I think they'll start to creep into your playing naturally as you get to know them better – after a while, you'll begin to develop a feel for where the arpeggio notes are within whatever scale shape you're using, and having this instinctive awareness of the locations of the best notes will make you more confident in your improvisation. In addition, these shapes will bale you out if you're confronted with an awkward chord change at short notice. You could deal with a situation like this by first visualising the accessible CAGED shapes for each chord, building up the whole arpeggio shape around that framework and finally (if there's time!) filling in the gaps to form a whole scale. Training yourself to deal with chords in this way means that you can access all the information you need in the most practical order – important notes first, then the more decorative ones.

In short, trust me – these shapes are worthwhile, so don't skim over them.

The Relative Minor

That last section was a lot of work, I know, so let's go back to the blues for a bit of light(er) relief.

Harking back to the A minor blues progression found in the section covering 'The Minor Pentatonic Scale', you'll remember the following:

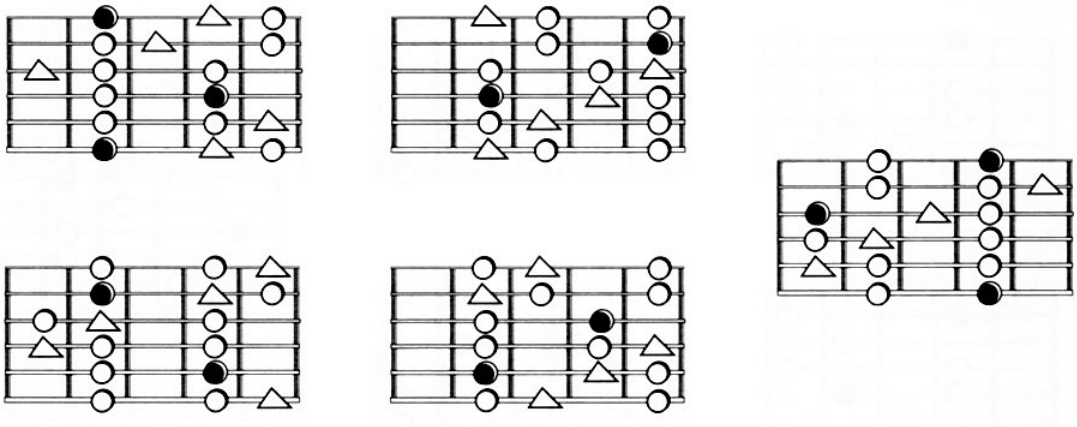
- The chord of A minor contains the notes A, C and E
- The chord of D minor contains the notes D, F and A
- The chord of E minor contains the notes E, G and B

If you pool all of these notes together and attempt to put them in order, you get the following A minor scale:

1	2	♭3	4	5	♭6	♭7
A	B	C	D	E	F	G

This scale comprises all of the notes from the A minor pentatonic along with two others, the second and the flat sixth. When compared to the minor pentatonic, this scale offers a broader tonal palette and enables you to hit every possible chord tone implied by the progression. From a blues-playing perspective, however, it's probably best to start out using the by now hopefully familiar pentatonic shapes as templates for these new fingerings, treating the extra notes as optional 'twiddly' notes. This will certainly help you to learn the following shapes more efficiently:

Example 4.49



In Example 4.49, I've shown the five minor pentatonic shapes using the usual white-dots/black-dots system, while the extra notes borrowed from the chord progression are indicated with triangles. This scale is known as the *natural minor*, and you might well have noticed that it contains the same notes as the C major scale shown earlier. Yes, it's that relative-minor principle again! Just as C major pentatonic contains the same notes as A minor pentatonic, the C major and A natural minor scales are also linked. The root notes and chord tones might be different for each, but the fingerings are identical. In other words, if you needed an E♭ natural minor scale fingering in a hurry, you could simply take an E♭ major scale shape, move it up three frets and try to hit the note E♭ a lot.

Here's how this scale applies to the classic I – IV – V progression:

- Over A minor, the notes of A, C and E sound perfect because they're actually contained in the chord, making them good notes to land on at the end of a phrase. The other two notes of pentatonic origin, D and G, sound a little less stable – in a question-and-answer phrase you could probably end the question on a D, but you'd most likely want to end the answer on a chord tone in order to resolve the tension.

  This leaves the two specifically Aeolian notes. You'll find that the F is only a semitone away from a perfectly good chord tone, so it almost sounds wrong if milked excessively. The B, on the other hand, has a sweeter quality about it – you could use it to add a jazzy flavour to an otherwise conventional blues lick, as you'll hear in the playing of Gary Moore, Carlos Santana and Eric Johnson, amongst others.

- Over D minor, it's a different story – F and D have never sounded so good. B still has that colourful jazzy quality, but now it's joined by E. The note most worth avoiding is now G...

- ... but check out how G redeems itself over E minor, the chord of V.

As before, your guiding principle is always to listen to the chord over which you're playing.

Using a scale like this can really open up some new avenues to explore in your blues licks, but bear in mind that, over any particular chord, a seven-note scale contains a higher proportion of 'bad' notes than you would get from a humble pentatonic, so be careful!

Modes

This next section shows how you can generate the notes of a natural-minor scale by taking a major scale and treating its sixth note as the root. This means that the same family of chords are common to both – ie both the C major scale and the A natural-minor scale give rise to the chords Cmaj7, Dm7, Em7, Fmaj7, G7, Am7 and Bm7♭5. The only difference is that the notes would act as a C major scale if the key of the song was C major and as an A natural minor scale if the key of the song was – you guessed it – A minor.

As it turns out, you can treat any one of the seven notes in a major scale as the root note, and this brings us into the much-feared territory of *modes*. I've met many players who struggle with the concept of modes, but there really isn't anything to get worried about.

Look at it this way: you already know that you can make a natural-minor scale in any key by taking a major scale three frets higher up from its root and starting from its sixth note. All you're doing now is seeing what happens when you start from the other notes of the scale. Just as the major scale sounded happy and the relative minor sounded sad, so each of these modes has its own distinctive mood. (It's no coincidence that the words *mood* and *mode* sound so similar!)

Let's get the scary part out of the way now. Example 4.50 over the page shows you all seven modes of a C major scale, complete with their confusing Greek names. Don't be put off by the names – you'll get used to them. You'll notice immediately that the Ionian mode is the common-or-garden major scale and that the Aeolian mode is the natural minor, so this leaves five unfamiliar modes to explore. To get some idea of where to use these modes, take a look at how the formula of each compares to the benchmark major scale:

Ionian (maj7):	1	2	3	4	5	6	7
Dorian (m7):	1	2	♭3	4	5	6	♭7
Phrygian (m7):	1	♭2	♭3	4	5	♭6	♭7
Lydian (maj7):	1	2	3	♯4	5	6	7
Mixolydian (7):	1	2	3	4	5	6	♭7
Aeolian (m7):	1	2	♭3	4	5	♭6	♭7
Locrian (m7♭5):	1	♭2	♭3	4	♭5	♭6	♭7

If you look at the first, third, fifth and seventh in each mode, you'll see why I've included those bracketed seventh chords. Each mode basically contains four chord tones you already know plus three extra notes. In order to attain a complete understanding of any mode, your ear only needs to learn the sound of these extra notes, because (hopefully) you're already familiar with the sounds of the four notes in the appropriate seventh chord. Or, to look at it another way, the Dorian, Phrygian and Aeolian are all minor modes, although the second, fourth and sixth of each imparts a unique flavour, so that they all sound sad in slightly different ways.

In Example 4.51 on the next page are some fingerings for those three minor modes. You'll notice that these modes not only contain the same first, flat third, fifth and flat seventh but that they also share the same fourth, so all of the flavouring lies in what kind of second and sixth you use. I've notated these here as triangles. If you take out the triangular notes, you're left with our old friend the minor pentatonic.

Approaching modes like this not only reduces the amount of learning you need to do but also allows you to control exactly how 'modal' your licks sound. If, for instance, you wanted to sound particularly Dorian over a minor chord, you could add liberal doses of the second and sixth to your blues licks; if you decided that the results were starting to sound a little too clever, you could rectify the situation by using those colourful notes a little less and placing more emphasis on the basic pentatonic notes.

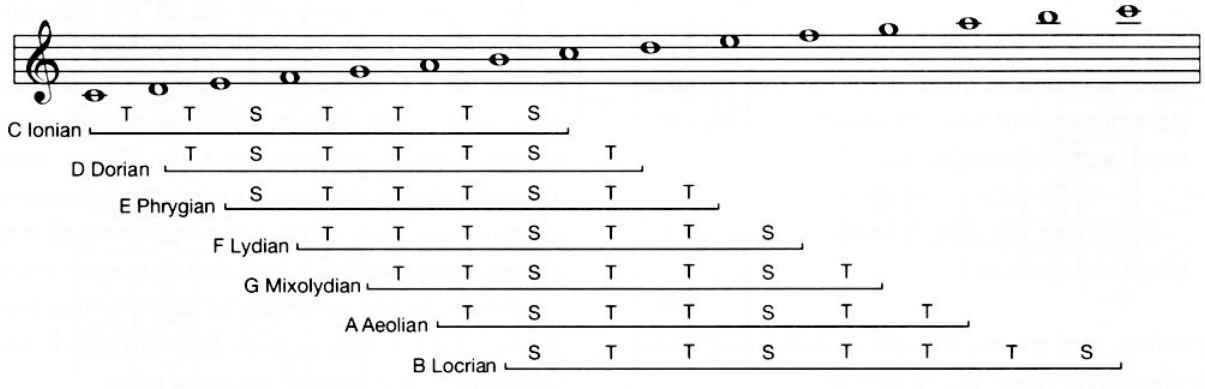
Incidentally, I've been describing the moods of the Ionian and Aeolian modes as happy and sad respectively, although you might well prefer to think of the modes in terms of how dark or bright they sound. The more flat notes there are in the formula of a mode, the darker it sounds, so you could arrange all of the modes in this order, starting at the bright end of this mood spectrum and working down:

Lydian (one sharp)
Ionian (no sharps or flats)
Mixolydian (one flat)
Dorian (two flats)
Aeolian (three flats)
Phrygian (four flats)
Locrian (five flats)

Personally, I think that you can place more emphasis on the 'extra' notes when you're using the brighter-sounding modes – they tend to keep a more respectful distance from the chord tones, so you're less likely to chance upon an 'avoid note'.

If you try the three minor modes out over a minor-

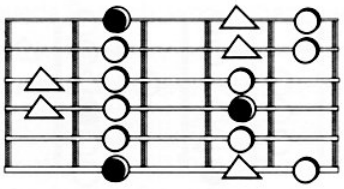
Example 4.50



Example 4.51

Dorian

1



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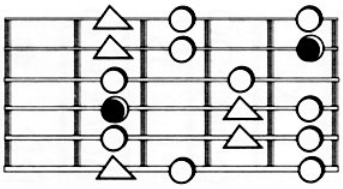

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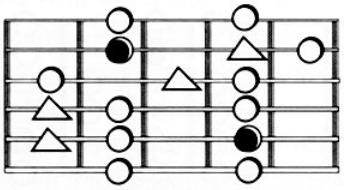

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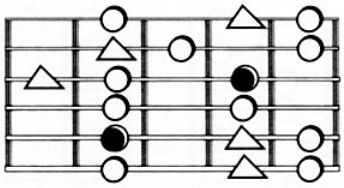

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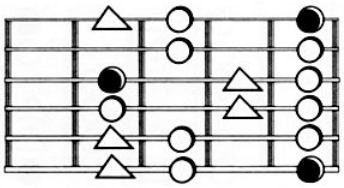
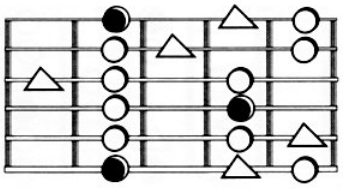


Aeolian

1



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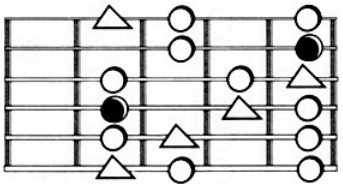

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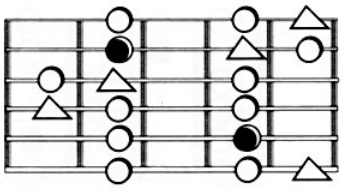

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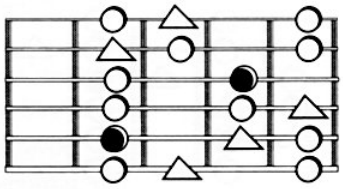

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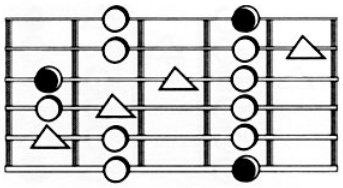
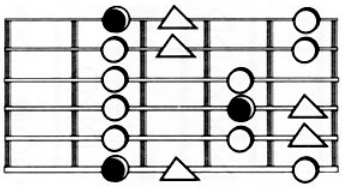


Phrygian

1



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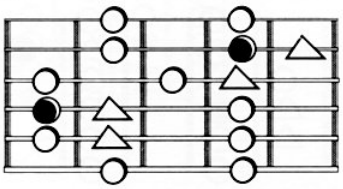

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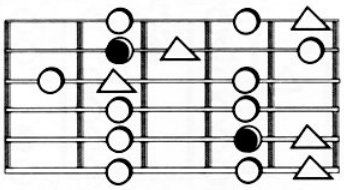

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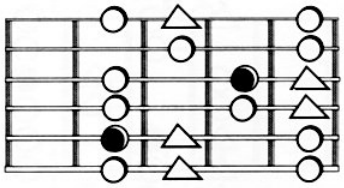

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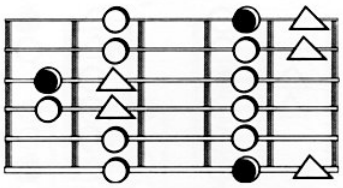
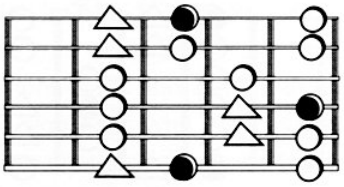
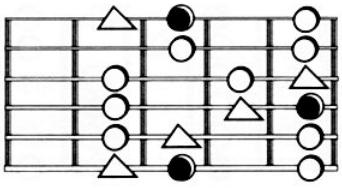
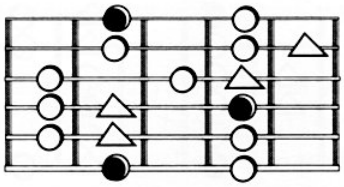
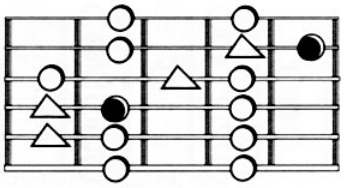
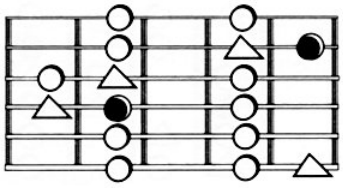
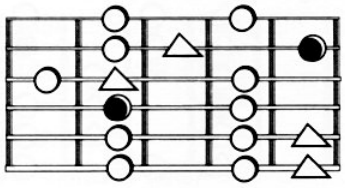
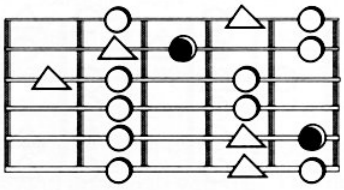
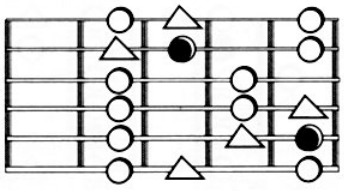
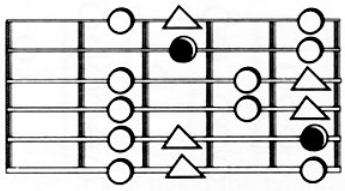
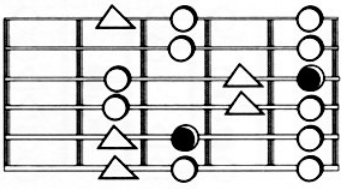
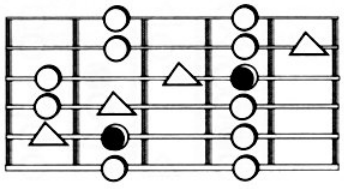
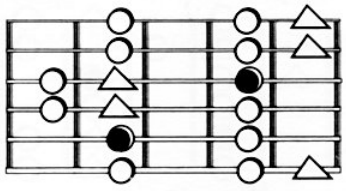
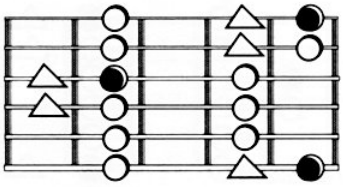
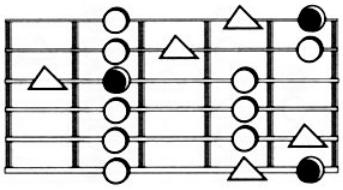
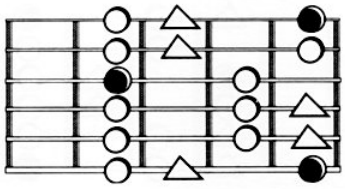


Example 4.52

Lydian	Ionian	Mixolydian
1 	1 	1 
2 	2 	2 
3 	3 	3 
4 	4 	4 
5 	5 	5 

seventh chord, you'll probably conclude that the Dorian sounds relatively cheerful for a minor mode, with jazzy overtones and perhaps a hint of Santana. The Aeolian, meanwhile, is a little more heavy metal – more Iron Maiden than Miles Davis, methinks! The Phrygian sounds menacingly dark – some people think it sounds Spanish, while others hear the potential for thrash metal riffery therein because of that evil clash between the root and the flat second. (I think that the flat second is the most distinctive note in the Phrygian mode, while the sixth is quintessentially Dorian.) The Aeolian is recognisable because it doesn't contain either of these notes – I hear it as something of a neutral minor mode, the most normal-sounding mode of the three.

If you want to treat the major modes in the same way, you have to start with a *major* pentatonic framework. This, as you'll recall, comprises the first, second, third, fifth and sixth, so the interesting stuff happens around the fourth and the seventh. Example 4.52 elaborates on this.

As with the minor modes, I've arranged these major modes in order of brightness. Try them out over a standard major triad. You'll probably agree that the Lydian sounds spacey, dreamy and Vai-esque – indeed, most Steve Vai albums feature an extended E Lydian improvisation at one point or another, and you might use Joes Satriani's 'Flying In A Blue Dream' as another reference point, or indeed the verse section from The Police's very splendid 'Every Little Thing She Does Is Magic'.

The Ionian needs no introduction – we've been hearing it annually in the form of 'Happy Birthday', 'Good King Wenceslas' and other such party favourites. It has a cheerful, almost childlike quality about it, but it lacks the dreaminess of the Lydian mode.

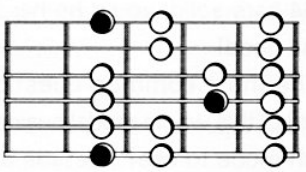
The Mixolydian will remind you of riffs like 'Oh Pretty Woman' and 'I Feel Fine'. Helpfully, it's the only mode of the major scale that works over a dominant-seventh chord, so you'll instinctively gravitate towards it in all dominant-seventh situations. Just as the Aeolian sounds the most normal of the minor modes, so the Ionian sounds like the most familiar major mode.

There's one mode we haven't covered yet: the Locrian. This only works over minor-seventh flath-fifth chords (m7♭5), which sound so tense that chord progressions tend to feature them only in passing rather than making them the tonal centre of the harmony. You can find a Locrian mode by taking the major-scale fingering, moving it up a fret and treating the seventh as the root. Compare Example 4.53 below with the Ionian shapes in Example 4.52:

Example 4.53

Locrian

1



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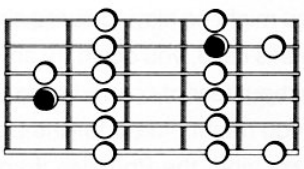

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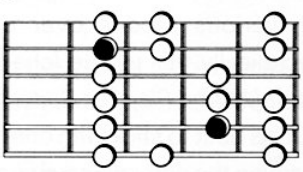

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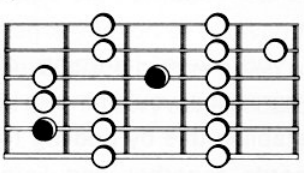

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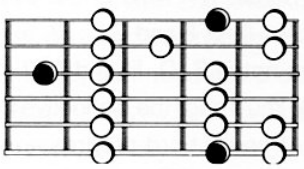


Yuk! This is *nobody's* favourite mode! However, that's not to say you'll never use it. For instance, take the following chord progression:

Bm7♭5 Em7 Am7

You could use an A Aeolian fingering over all three of these chords, but technically the notes of this scale would act as B Locrian, E Phrygian and A Aeolian over the various chords in turn. Note how the Locrian notes sound fine over Bm7♭5 in this context. Bear in mind, though, that if you were to jam over that one chord for 64 bars solid, you'd be hard pressed to make it sound good!

The most common question I encounter with regard to this whole modal business is 'How do I know which mode to use?'. Let me answer that with two sample scenarios:

- You might be playing over a single chord of A minor. In this case, you could try any of the minor modes without fear of contradicting the notes in the chord – you might plump for the Dorian if you wanted a jazzy vibe, the Phrygian if you wanted more of a brooding, ethnic feel and the Aeolian if you weren't sure. Some books will tell you that it's OK to mix up various modes over a single chord, and technically this is true (check out Frank Zappa's *Shut Up And Play Yer Guitar* for examples of this), but it's best to stick with one at a time while you're learning the different sounds of the modes or you'll run the risk of sounding like you don't know what you're doing.

- If you were jamming over an Am7–Bm7 progression, you'd have to use Dorian. You could establish this by pooling the notes of the two chords together and listening to how they functioned when you looked at them in the key of A minor. The Am7 chord obviously gives you the notes A, C, E and G (1, ♭3, 5, ♭7) and the Bm7 adds the notes B, D, F♯ and A (2, 4, 6 and 1 relative to A). You'll spot the distinctive Dorian formula here...

  If your chord progression went from Am7 to Bm7♭5, you'd have an F in your note pool rather than the F♯ you had previously. This is a flat sixth relative to A, so the Aeolian would suggest itself.

  If you had an Am7-B♭maj7 progression, you'd need to use the A Phrygian mode, because the B♭ is a flat-second relative to A and the Phrygian is the only minor mode that contains a flat second.

Modes can be looked at as being either *parallel* or *derivative*. What I've been doing so far is taking the parallel approach by defining G Mixolydian as a G major scale with a flat seventh. In contrast, the derivative approach would define G Mixolydian as a C major scale starting from its fifth note. Each way of thinking has its own pros and cons, as follows:

- The parallel approach admittedly requires you to learn different shapes for each mode, but once you know the shapes, you can access them instantly and you end up with a better understanding of how the individual notes function over a chord.

- The derivative approach is responsible for a good 90 per cent of the confusion experienced by students with regard to modes. I've seen students who will spend hours with a metronome practising C Ionian, then D Dorian, E Phrygian, F Lydian and so on, and at the end of it all they've heard the same seven notes so many times that everything's become a bit of a blur and the distinctive character of each mode is lost.

In actual playing terms, the derivative idea is more clumsy and less instinctive than the parallel way of thinking. If you had to find an A♭ Mixolydian mode in a hurry, you'd clearly be better off knowing a specific Mixolydian shape and simply moving it to a part of the neck where the root note lined up with an A♭ on the fretboard. The derivative approach expects you to conduct the following detective work: 'The Mixolydian is the fifth mode of the major scale, and the fifth note of the major scale is a perfect fifth above the root. That's a distance of seven frets. Therefore I need to count down seven frets from A♭ and play a major scale starting from...er...D♭.' By the time you've gone through that whole process, the chord of A♭ will probably be long gone!

On the other hand, the parallel approach isn't without its charms. When we were looking at those sample chord progressions for the minor modes, we were borrowing notes from the various chords and seeing how they related to the key of the song, but you could also establish which mode to use by trying to see the progression as an excerpt from a harmonised major scale. Hopefully, you're getting used to the sounds of these series of triads and seventh chords:

Imaj – iimin – iiimin – IVmaj – Vmaj – vimin – viidim – Imaj
(+T) (+T) (+S) (+T) (+T) (+T) (+S)

Imaj7 – iim7 – iiim7 – IVmaj7 – V7 – vim7 – viim7♭5 – Imaj7
(+T) (+T) (+S) (+T) (+T) (+T) (+S)

Thus if you encounter a progression where all of the chords sound like part of the same scale and the key is a dominant-seventh chord, you'll know that the parent major scale must start seven frets lower. Similarly, you can deduce the parent scale if you see two major chords a tone apart or two minor chords separated by the same distance and so on. See if you can spot the mode for these progressions before reading on:

- A – D – E – A
- Am7 – D7
- Am – C – B♭ – Am
- A – B
- A – G
- Am – Dm – Em – Am
- Am7♭5 – B♭maj7

Hopefully, you concluded that the above progressions represented the seven modes in order – ie Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian and Locrian, all with A root notes. You might find this mathematical approach a little tedious and unmusical, but you'll eventually learn to recognise modal traits instinctively once you know what to listen out for. If nothing else, the above will serve as a set of sample chord progressions suitable for trying out each mode.

If you think you'd find the derivative approach useful, you'll probably appreciate the following summary of the parent scales for each mode:

- The Dorian comes from the major scale starting a tone lower.
- The Phrygian comes from the major scale starting two tones lower.
- The Lydian comes from a major scale two and a half tones lower.
- The Mixolydian comes from the major scale starting two and a half tones higher.
- The Aeolian comes from the major scale starting a tone and a half higher.
- The Locrian comes from the major scale starting a semitone higher.

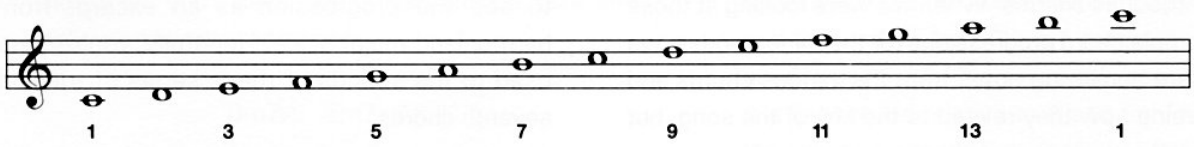
However you choose to approach modes, the best thing to do is just play them. The rest will come naturally.

Big Scary Chords

So what exactly is a B♭maj13♯11 chord? Well, basically, any chord with a big number in its name can be viewed as a fancy version of a seventh chord. You might use one in place of a simpler voicing if you wanted to add a bit of jazzy sophistication to a chord progression.

You'll recall that the chords covered so far have all been constructed by numbering the notes of the major scale from one to seven and stacking the odd-numbered notes on top of each other. To generate the remaining numbers, you need more odd-numbered notes, and to find these you have to extend the scale over two octaves. In the key of C major, you'd get the following arrangement:

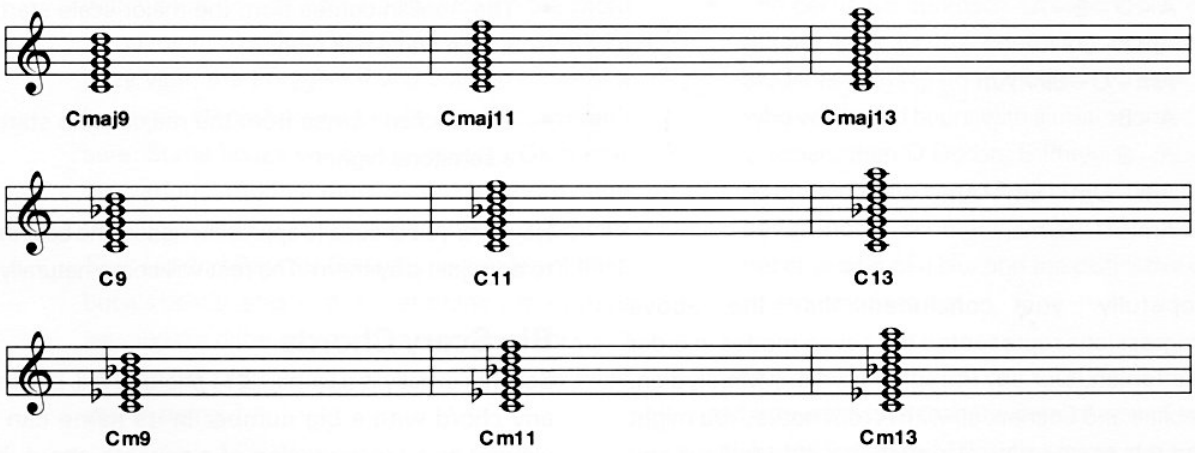
Example 4.54



This gives you a name for all the notes in the major scale. You've probably spotted that the ninth, 11th and 13th have the same note-names as the second, fourth and sixth, but numbering them in this way keeps the low numbers for the essential notes found in all the common chord types and reserves the bigger numbers for the more decorative notes, which merely add flavouring to basic seventh chords. Thus you can tell how fancy a chord will sound just by looking at its name. In addition, it means that, whenever you're confronted by a complicated-looking chord symbol – when sight reading a chart at a gig, for instance – you can easily reduce it to its skeleton seventh chord. When you've been put on the spot, it's far better to play a plain-sounding version of the right chord than panic and not playing anything at all.

In theory, you would construct the chords of Cmaj9, Cmaj11 and Cmaj13 by stacking the appropriate number of odd-numbered notes on top of a Gmaj7 chord. Similarly, G9, G11 and G13 are produced by building on a G7 (dominant) chord. You can probably guess how Gm9, Gm11 and Gm13 are made...

Example 4.55



(Note that min13 chords use a natural 13th rather than the flat sixth note from the natural minor scale.)

Unless you're into Korn or George Van Eps, you'll see an immediate problem with all of those 13th chords: they contain seven notes. So how are you supposed to play them on a six-stringed instrument? Some notes will clearly have to be discarded. As a general rule, the only notes you need to include in the chord are:

- the root note, to tell you which key the chord is in;
- the third, to tell you if it's major or minor;
- the seventh, to indicate whether or not the chord has a dominant sound; and
- the note specified by number in the chord name – ie the ninth, 11th or 13th).

The other notes are less important, and you can do without them. One exception would be the dominant

11th chord, in which the third and the 11th are technically only a semitone apart and therefore clash horribly. In this case, you'd be better off discarding the third and replacing it with a fifth or a ninth.

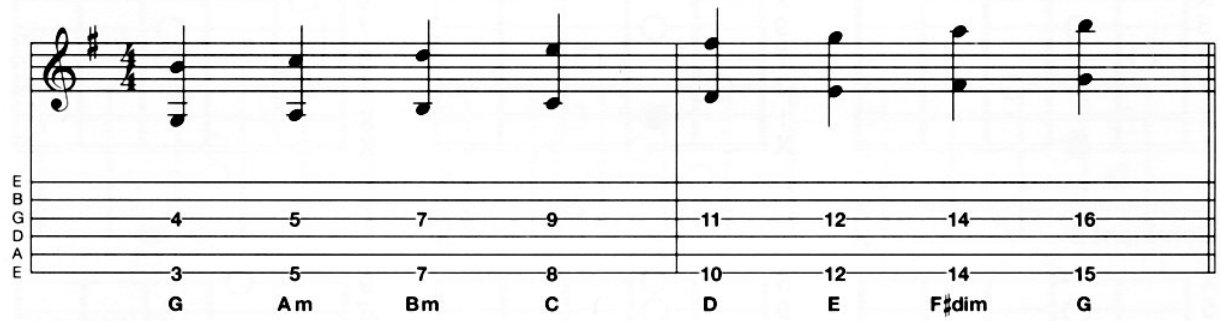
(You'll also find that the major 11th chord sounds quite repulsive – the seventh and the 11th are a tritone apart, and this tension spoils the essentially agreeable and stable sound of the major-seventh core around which you've built the chord. If you sharpen the 11th, however, the chord redeems itself with a nice Lydian sound.)

Another important factor is actually voicing these chords. Because there are some fairly complex notes involved, they must be spaced carefully so that the distinctive character of each can be heard clearly. In general, the root note should be kept at or near the bottom of the chord, with the extension notes kept at or near the top.

In addition, you should remember that the notes at the bottom end of a chord need to be spaced further apart. This is particularly true of voicings situated near the nut and utilising the low E string – the higher up the stave you go, the smaller the intervals you can get away with. For an extreme illustration, try playing the open A string along with the G♯ at the fourth fret on the low E. Sounds muddy, doesn't it? Now compare the sound of the same minor-second interval three octaves higher (fret 17 on the top E along with fret 21 on the B string). In this part of the neck, you'll have to agree that the two pitches are more distinct and that the clash between them is decidedly less offensive to the ear, even though it's the same interval as before!

You can start to get a general feel for all of the above by practising tenth intervals up and down the neck. Tenths are an example of *compound intervals* – ie intervals larger than an octave – but don't worry too much about such technicalities; you can think of tenths simply as thirds spread out over an extra octave. You'll hear how the two notes sound more like a whole chord when they're spaced in this way:

Example 4.56

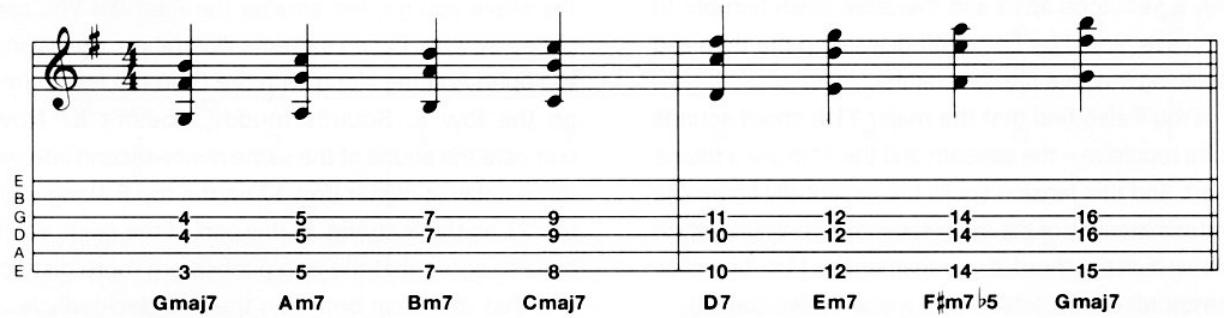


(If you're wondering why I've suddenly switched to the key of G major, it was purely so that you could hear the shapes lower down in the guitar's register, where wide note spacing is most effective.)

These intervals might remind you of The Beatles' track 'Blackbird' or the bass line from 'Walk On The Wild Side'. Once you're used to the way in which tenths sound, you could flesh out the chords with some sevenths to get Example 4.57 at the top of the next page. Note how these sound like complete seventh chords, despite the absence of any fifth (apart from the F♯m7♭5 chord, which obviously needs its flat fifth to distinguish it from a normal minor-seventh chord). Shapes like these make good templates for the construction of extended chords, and if you listen to solo jazz players like Joe Pass or Martin Taylor, you'll notice that the majority of their chord voicings don't contain more than three or four notes. The six-string monster voicings you sometimes find in chord dictionaries are best saved for special occasions!

I couldn't possibly offer you a comprehensive list of extended chord shapes within the confines of these pages – like I said, there are whole books devoted to that sort of thing. In Example 4.58, however, are a few

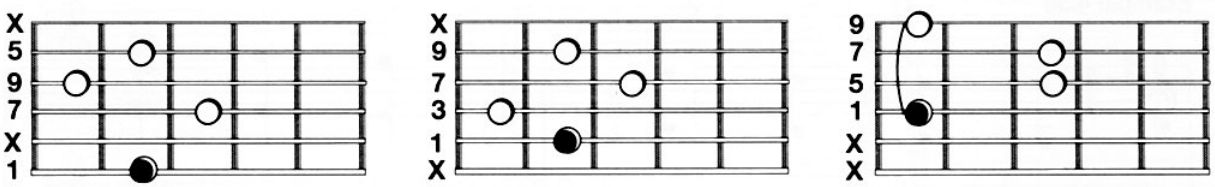
Example 4.57



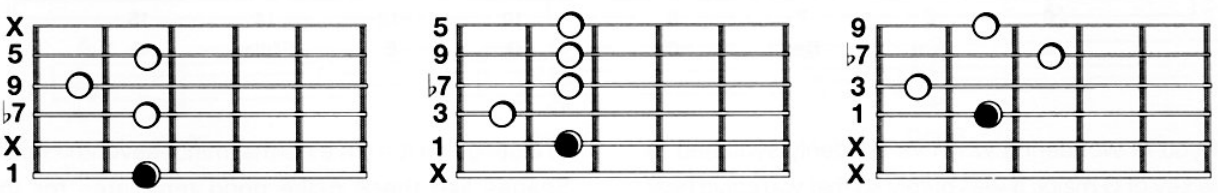
handy shapes for some of the most common extended chords. Rather than following the CAGED system to coax five arbitrary shapes out of each chord type (although, of course, you could do this), I've just listed a few voicings that I use a lot. These should be sufficient to give you a feel for the general mood of each kind of extended chord. Once you've got the general idea, you should try to come up with some voicings of your own:

Example 4.58

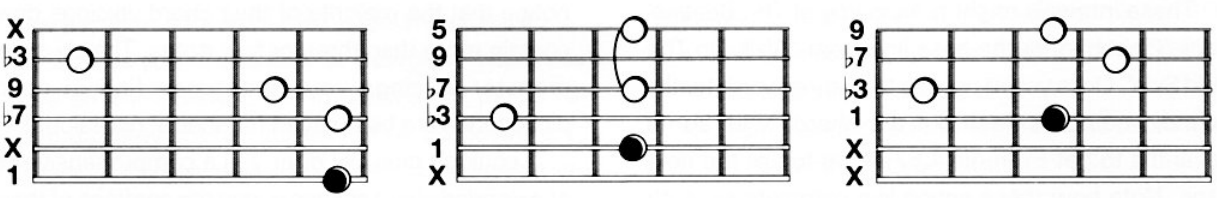
Major 9



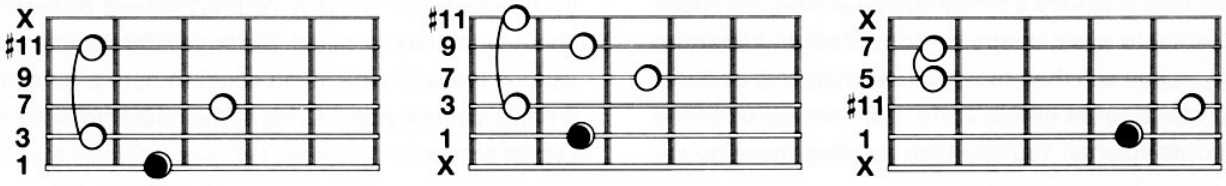
Dominant 9



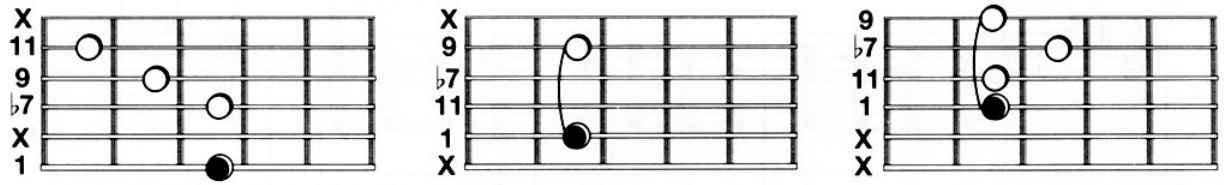
Minor 9



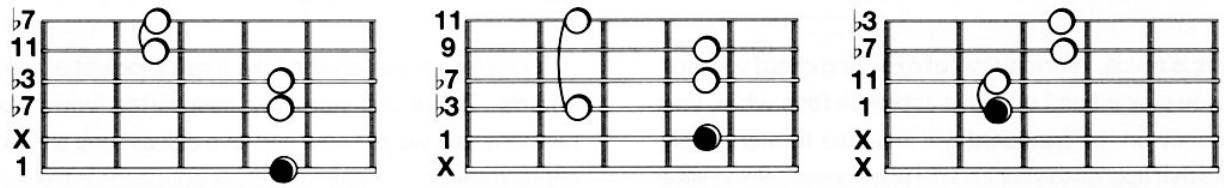
Major 9♯11



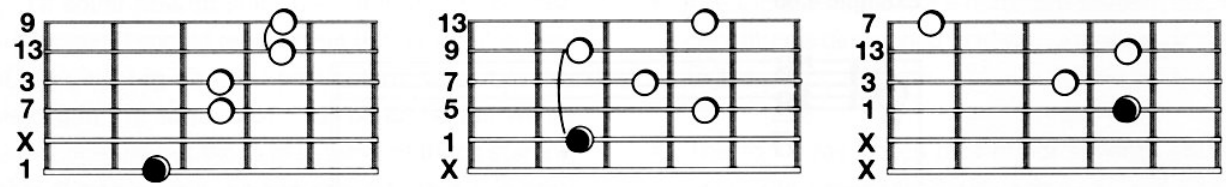
Dominant 11



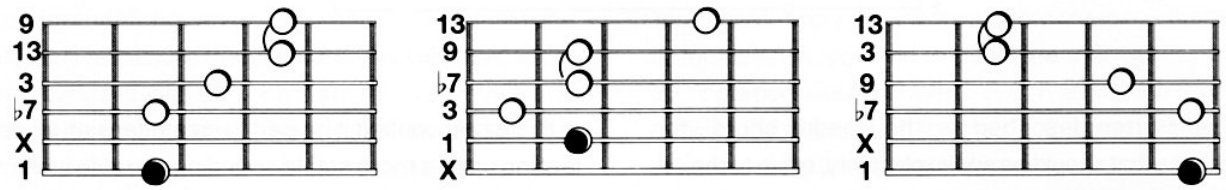
Minor 11



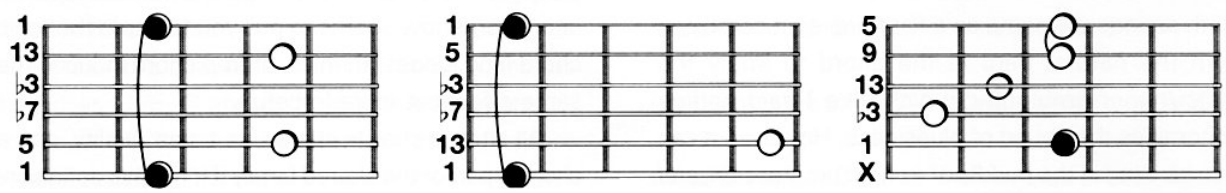
Major 13



Dominant 13

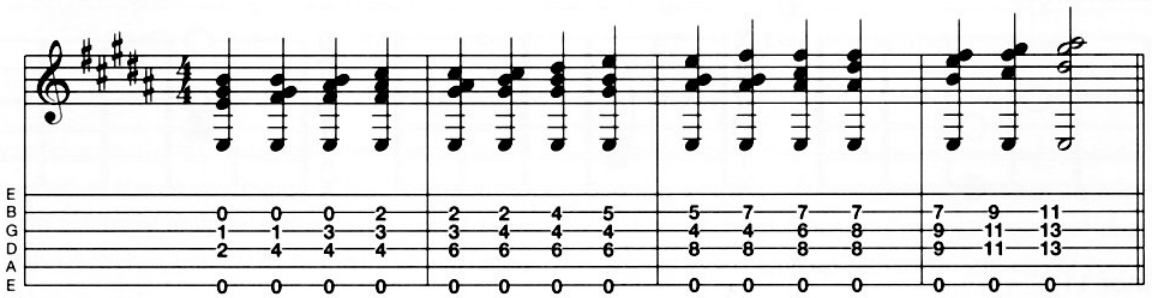


Minor 13



Another good way of experimenting with chord voicings is to take a simple shape and superimpose a suitable scale shape on top. From this starting point, you can then move various notes up or down to other notes in the scale, generating extended chords aplenty. You can then audition these by ear to hear which most accurately captures the mood you're trying to convey, without having to worry about what they're called. Example 4.59 depicts the various ways in which you could mutate a humble E major chord by borrowing some notes from the E Lydian mode:

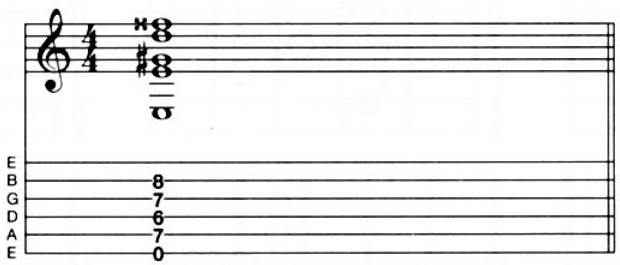
Example 4.59



This is a nice, informal way of exploring chord voicings. If you play around with this approach for a while, your fluency on the fretboard will increase tremendously, and that applies to your chordal playing and soloing alike.

Now let's move on and take a quick look at *altered chords*. These are normally associated with jazz harmony, but we all know and love at least one altered chord voicing:

Example 4.60



This is often described as 'the Hendrix chord', for reasons that should be self-explanatory, but in technical terms it's an E7♯9, hence the unwieldy-looking double sharp in the music. Hendrix often played extended jams over this chord, and it works because the sharp ninth sounds the same as a flat third, so it combines with the natural third in the chord to imply the major/minor ambiguity, which, like I said earlier, epitomises the sound of bluesiness. However, it can also be used in the middle of a chord progression, and in this jazzier context it is used to create tension when leading up to a more stable-sounding chord (usually a fifth below). Dominant chords have something of this quality about them anyway, but the tension is more pronounced in altered chords; if a dominant-seventh chord somehow seems to pull you towards the tonic chord (and it does) then an altered chord induces the same effect but more forcefully.

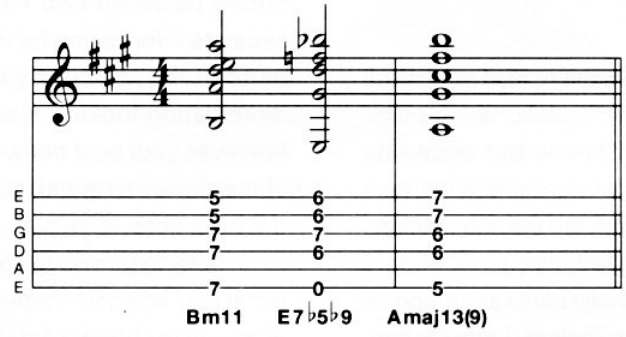
All altered chords share this tense quality, and a chord is part of the altered family if it fits this definition:

An altered chord is any dominant chord in which the fifth and/or ninth has been altered (ie flattened or sharpened)

Thus E7♯9, E7♭9, E7♯5♯9, E7♯5♭9 and their siblings all feature that tension which seems to pull you inexorably towards an A chord. For this reason, you'll sometimes find 'E alt' written in chord charts, meaning that the composer wants *some* sort of tension in the chord, but doesn't really mind which altered chord you use.

For a demonstration of an altered chord in action, take a look at Example 4.61:

Example 4.61



The E7♭5♭9 sounds almost wrong if you play it on its own, but in the context of the ii – V – I progression it makes a lot more musical sense.

I'll cover how to solo over altered chords later, but for now I should tell you that there's another way of viewing big chords, particularly when you're playing in the context of a full band. So far, we've been counting out those big stacks of thirds starting from the root note, on the grounds that this note provides the key of the chord and is thus somehow more important than the others. In a band arrangement, however, it's probable that someone else will be playing the root note – usually the bassist or keyboard player – and so this removes any pressure on you to do the same. This means that you need only play the higher, more interesting notes. These will blend in with the simpler, more fundamental chord tones played by your bandmates, and the sum of the parts amounts to the big jazz chord in its entirety.

To take the simplest example, Cmaj7 contains the notes C, E, G and B. If you take away the C, you're left with a humble E minor triad. In more general terms:

- The top three notes of a major-seventh chord constitute a minor triad with a root two tones higher.
- The top three notes of a dominant-seventh chord constitute a diminished triad with a root two tones higher.
- The top three notes of a minor-seventh chord constitute a major triad with a root one and a half tones higher.

You can also apply this theory to more complex chords. If, for instance, you had to negotiate a Cmaj9 chord, your note pool would contain C, E, G, B and D. You might remove the C and the E to reveal a G major triad or, if you were really fond of the third, you could just remove the C, which would leave you with an Em7 chord. In general, the following rules hold true:

major 9th = minor 7 (+3rd) = major triad (+5th)

dominant 9th = minor 7♭5 (+3rd) = minor triad (+5th)

minor 9 = major 7 (+3rd) = minor triad (+5th)

major 9♯11 = major 7 (+5th) = minor triad (+7th/-♭2nd)

dominant 11 = minor 7 (+5th) = major triad (+♭7th/-2nd)

minor 11 = minor 7 (+5th) = major triad (+♭7th/-2nd)

major 13 = minor 7♭5 (+7th/-♭2nd) = minor triad (+9th/2nd)

dominant 13 = major 7 (+♭7th/-2nd) = minor triad (+9th/2nd)

minor 13 = major 7 (+9th/2nd) = minor triad (+9th/2nd)

That's a lot to remember, I know, but once you understand the principles at work, it shouldn't take you more than a moment to work out the substitutions that complement any extended chord you should happen to meet. If you apply these ideas as arpeggios when you solo, you'll get a convincingly Larry Carlton-type vibe, which is always nice.

In rhythm-playing terms, you should try out these ideas for yourself and draw your own conclusions about which ones sound best. Bear in mind that, if one sounds particularly clumsy, it might be that you're voicing the chord too low on the neck or that you're using a voicing that covers too many strings. The effect is meant to be relatively subtle, so a strident E-shaped barre chord, with its three root notes, would be a bad choice!

Considering these complications, you're probably wondering why on Earth you'd ever need to use these ideas. 'After all,' you might reasonably argue, 'it takes me longer to work out where these triads and seventh chords are than it does for me to remember a 13th shape in its entirety.' Indeed. However, one of the main points of this principle is that it allows you to combine the sophisticated harmonic qualities of an extended chord with the choppiness and immediacy of a three- or four-note voicing. If you listen to Steve Lukather's guitar part on Randy Crawford's 'You Might Need Somebody', you'll hear him playing stabs that do nothing more than outline the higher extensions of each chord. Basically, the results just *sound* good – the stabs sound more in time than any larger voicings ever could, and they don't take up too much space in the mix – so the guitar is audible but not at the expense of any other instrument.

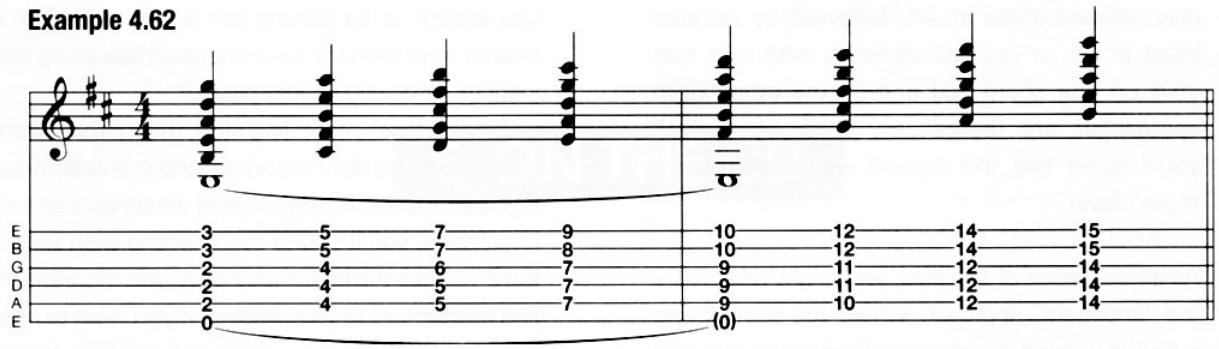
As an extension of this, you might have noticed that all of the dominant 11th voicings listed so far look like simple major triad shapes with the wrong root note stuck on the bottom. If you look at, say, D11 in this way, you could notate it as C/D, which you would read as 'C with a D in the bass', or as 'C over D', or even as 'C slash D'. These are known as *slash chords*, and they're particularly popular with piano players, who often split their chord-playing duties between two hands and thus like to see separate information for the left-hand and right-hand parts of the chord. If you were confronted by an intimidating-looking slash chord at short notice, however, your best bet would be to play the first half of the chord name and let someone else worry about the bass note.

In soloing terms, you have two options: you could either play arpeggio shapes based around the first part of the slash chord's name or you could simply pool all of the notes of the chord and try to find a familiar scale that fits the bill. For instance, C/D would be best tackled with a D Mixolydian mode and E/D would call for a D Lydian, although C/D♭ wouldn't fit any of the modes we've looked at so far and sounds truly horrible! (That's not to say you'll never encounter it – check out something like the *East River* compilation by The Brecker Brothers and you'll hear all sorts of horrendous-sounding slash chords in a jazz-fusion context where, somehow, they seem to make sense.)

There's one other topic I should mention briefly, and that is *quartal harmony*. As you might have guessed from the name, this is based on the principle of generating chords by stacking up fourths, rather than the thirds that have been used so far. These chords are harder to name accurately, because conventional music theory is so geared towards stacked thirds, but you'll find that a lot of quartal chords have that empty, vague sound you might have noticed in the minor 11th chords examined earlier. Have a go at Example 4.62 at the top of the next page to get a feel for things.

These strange-sounding chords are constructed from the notes of E Dorian, and they have a moody quality about them which can really add character to those one-chord jams. If they sound a little too odd

Example 4.62



for your tastes, try stripping them down to the D-, G- and B-string notes for a more conventional and somewhat jazzy sound.

You might not find a home for all of the ideas listed here in your own music, but as always it's worth checking them out before you dismiss them.

Playing Over Key Changes

Let's go back to soloing for a moment. Much of the theory covered so far has worked on the assumption that you'll normally be able to apply a single scale over a whole chord progression, simply targeting different notes within the scale as each new chord crops up. This works in a surprising amount of cases – chord progressions which are derived from a single scale have a reassuringly 'normal' sound to them, so they're very common.

By way of example, if you're playing over a progression that starts on Am7 and moves to Bm7, you would pool together the notes of those two chords and conclude that the A Dorian mode would be your safest bet. Similarly, if the progression went from Am7 to Gm7, you would be justified in using the notes of A Phrygian over the whole thing.

But what if the Am7 led to a *C*m7 chord? No scale immediately suggests itself that could function over both of these chords. Indeed, your ears would pick up on this immediately, without the need for any knowledge of theory whatsoever – the progression has an abrupt, disjointed sound, and it sounds like the whole key is changing every time a new chord appears. If you write a long progression in which every change is as random as this, the results will run the risk of sounding tuneless and meandering, but used sparingly the occasional unexpected chord change can be very effective – think of the verse from The Doors' 'Light My Fire', which juxtaposes two minor chords a minor third apart (much as I described a moment ago!).

In a situation like this, the chord change really catches the attention of the listener, so it's of the utmost importance to think of something intelligent to play over it! There are a couple of ideas I'd like to run by you, just to get you thinking...

- It's probably safest to start by focusing on the most obvious notes in each chord and seeing how smoothly you can line them up. It's all very well to take your favourite blues box and simply move it up three frets, but the results will sound disjointed, as if the chord change has broken your train of thought. If you consider that Am7 contains the notes A, C, E and G while Cm7 contains C, E♭, G and B♭, you'll spot that the notes C and G are shared by both chords. This means that they're *common tones* (to use the appropriate jazz parlance), so emphasising one or both of those notes as the chords change will give some continuity to your soloing. In a similar spirit, you'll spot that, if you're playing an E over the Am7, moving down a semitone to E♭ when the Cm7 comes will sound a lot smoother than going all the way up to G just so that you can keep the scale shape the same!

  By experimenting in this way, you'll be able to find some melodic ideas that bridge the progression neatly and effectively. You can either

play isolated ideas in Am followed by isolated ideas in Cm or you can come up with licks that start on one chord and end on the other. Both approaches are theoretically valid, but I think you'll agree that the second way sounds a lot more clever.

- As an extension of this idea, you might want to try the "impatient" approach, where you start playing over the second chord a couple of notes before it actually arrives. This is an interesting variation on the tension-and-release theme; the effect is that you appear to be playing the wrong notes for a beat or two, then the new chord comes along and justifies what you've just played!

As with most interesting stuff, this idea will work well only if you do it tastefully and in moderation. If you anticipate a chord several whole bars before it happens, you'll sound more wrong than tense, but if you use the idea subtly it can add momentum and excitement to your soloing. If you want to hear a player who knows exactly when and how to use this idea, check out Larry Carlton. (In fact, check him out anyway!)

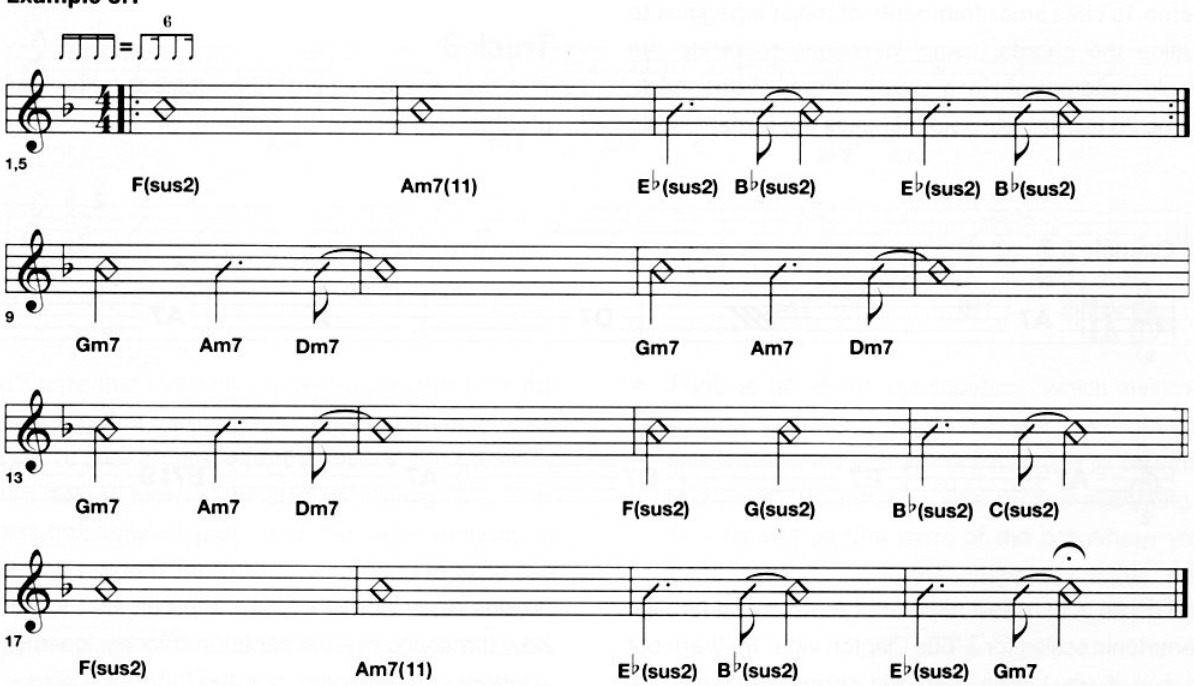
5 ON THE CD

Right then, now it's *your* turn to do the thinking! At the end of the CD, you'll find a selection of backing tracks, each accompanied by one or more demo solos to illustrate some of the ideas you encountered earlier in the book. In each case, I propose to give you the chord progression and some appropriate scale choices in the hope that you'll find your own ways of applying this information. Here's a breakdown of the tracks:

Track 1

This is a slow, bluesy track with a decidedly lazy 16th-note swing feel. The chord progression looks like this:

Example 5.1

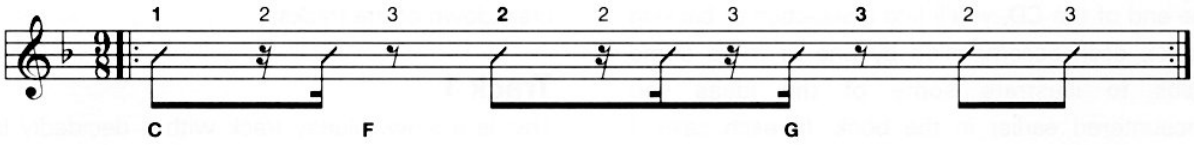


Demo 1a illustrates how you could come up with a chordal part full of those Hendrixian embellishments, using CAGED shapes as your basis and adding 'twiddly' notes from the relevant major or minor pentatonic scale. Demo 1b adds a sample solo to proceedings, featuring lots of bending up to chord tones.

Track 2

This one has something of a pseudo-African feel to it. Its unusual feel is a result of the 9/8 time signature. I've used a more standard 4/4 time signature for all the previous examples in the book, but don't worry – 9/8 simply means that nine eighth-note pulses occur before the rhythmic pattern starts to repeat itself. Rather than counting to nine every bar, you'll find it easier to think of the beats in three groups of three, counting 'ONE-two-three, TWO-two-three, THREE-two-three...' instead. If you try to follow the rhythm you hear on the track, you'll see exactly what I mean. The whole track follows this basic pattern:

Example 5.2

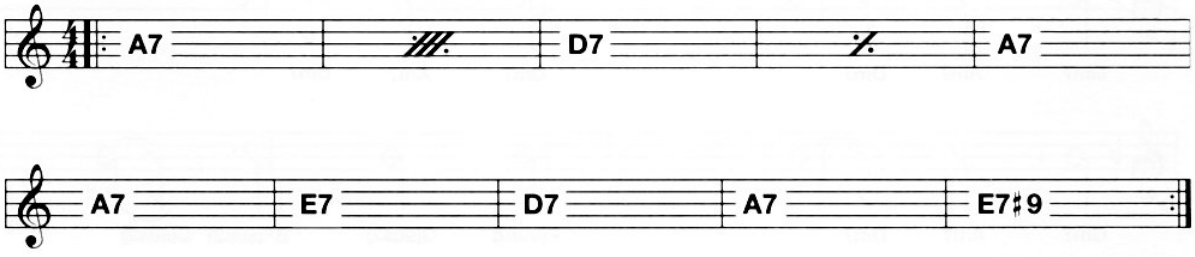


You'll note that the G chord comes a 16th note earlier than you would expect. This is described as a *push*, and you'll hear the effect on the CD. In playing terms, Demo 1a uses small fragments of major arpeggios to outline the chords, using inversions to tackle the whole progression in a single chunk of the neck. Demo 2b is a sample solo that uses the C major scale throughout but tries to land on as many chord tones as possible to highlight the chord changes. This is surely the happiest-sounding track on the entire CD!

Track 3

This one is a dominant 12-bar blues, following this progression;

Example 5.3

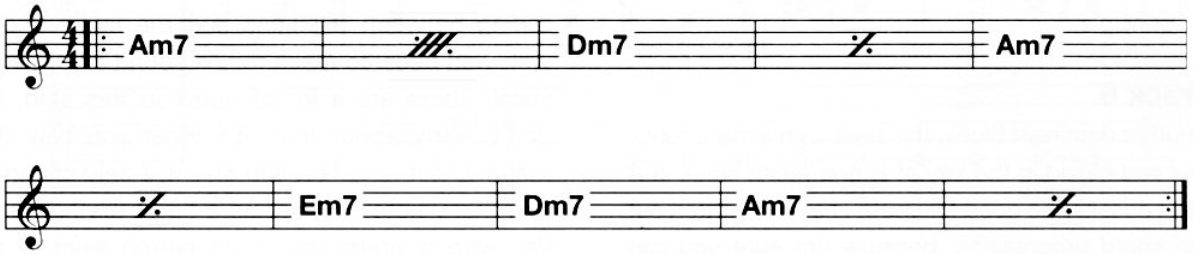


The demo solo uses a mixture of A minor and A major pentatonic scales for a '60s Clapton vibe. Try them out to see if you agree with my comments from the 'Scales And Chords' section (the part that looked at how the sound of each pentatonic varies according to whether you're playing over the I, IV or V chord.)

Track 4

This one's another blues in A, but this time around it's a minor blues, so you won't be surprised to see that the chord progression goes like this:

Example 5.4

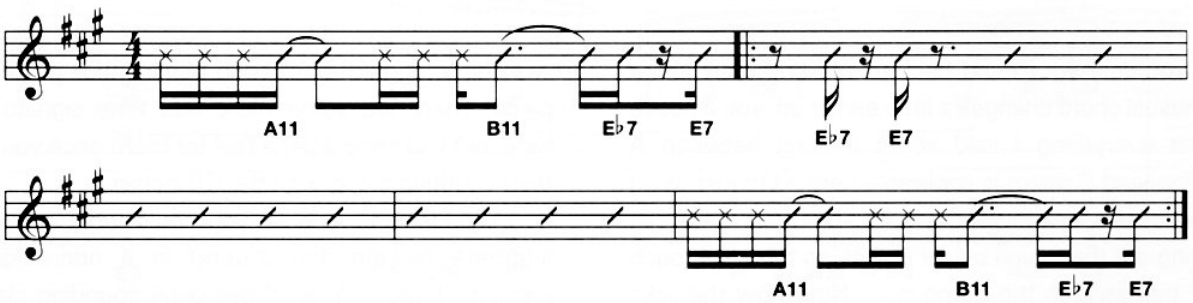


On the demo solo, I used the A aeolian mode throughout, targeting chord tones wherever possible. That honky Santana-like tone, incidentally, is the result of using lots of gain on the amp and rolling the tone most of the way down on the guitar (roll it off completely and things run the risk of sounding a little too woolly).

Track 5

This one breaks away from the whole blues thing and offers you a little funk groove to play with! Stylistically, this is something of a Tower Of Power rip-off, and your best bet would be to try various small chord voicings to outline the following progression:

Example 5.5



You'll note that I've only written out rhythms for the most important parts of this cycle. In between, your duty is to play around with E7 shapes and generally try to sound funky. This sort of playing is a nice, stress-free way of practising the basic motions of alternate picking. Try to keep your hand moving in a constant 16th note rhythm and simply move it away from the plane of the strings when you want to play a rest (silence). Of course, you can play what you like over this track (as always!), but if you're striving for authentic-sounding funk guitar part, you should remember the following key factors:

- Funk is all about *syncopation*, which basically means accenting some of the less obvious sixteenth notes within the bar. If you're counting '1-e-and-a 2-e-and-a...', this means accenting a few *e*s and *a*s (the parts of the bar where your hand naturally performs upstrokes) rather than just emphasising the main beats.

- You don't need to play full chords the whole time; this is essentially a percussive style, so you shouldn't be afraid to throw in a few muted notes by relaxing your fretting hand a little.

- Don't feel that you have to play all the time! Leaving a few gaps in your playing will actually give your part a bit more rhythmic interest. Listen to the classic track 'Pick Up The Pieces' by The Average White Band for a fine example of this principle.

Track 6

Another dominant blues, this time with a more funky feel and based in the key of B (too much blues in A can't possibly be good for you!). I haven't written out the chord progression, because I'm sure you can work it out...

In the solo, I've tried to get away from the traditional blues note choices by mixing the B minor pentatonic with some dominant-seventh arpeggios for a slightly jazzier effect.

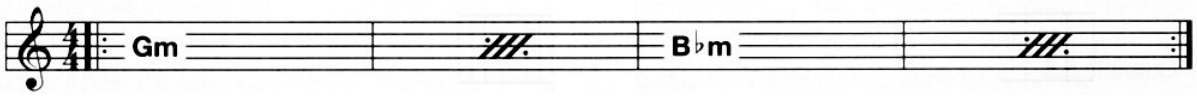
Track 7

This one is a long, dreamy vamp in E Lydian, so you can experiment with all your modal scale shapes! The demo solo owes more than a little to Steve Vai's playing and is replete with lots of sliding between positions and the addition of a wah-wah pedal to make things sound a little more vocal. There are a lot of notes in this solo, but don't worry about that; it's *what* you play that matters, not how fast you play it. I only crammed that many notes in here as a tip of the hat to Mr Vai, who is pretty much the patron saint of the Lydian mode.

Track 8

This track uses the following progression of chords:

Example 5.6



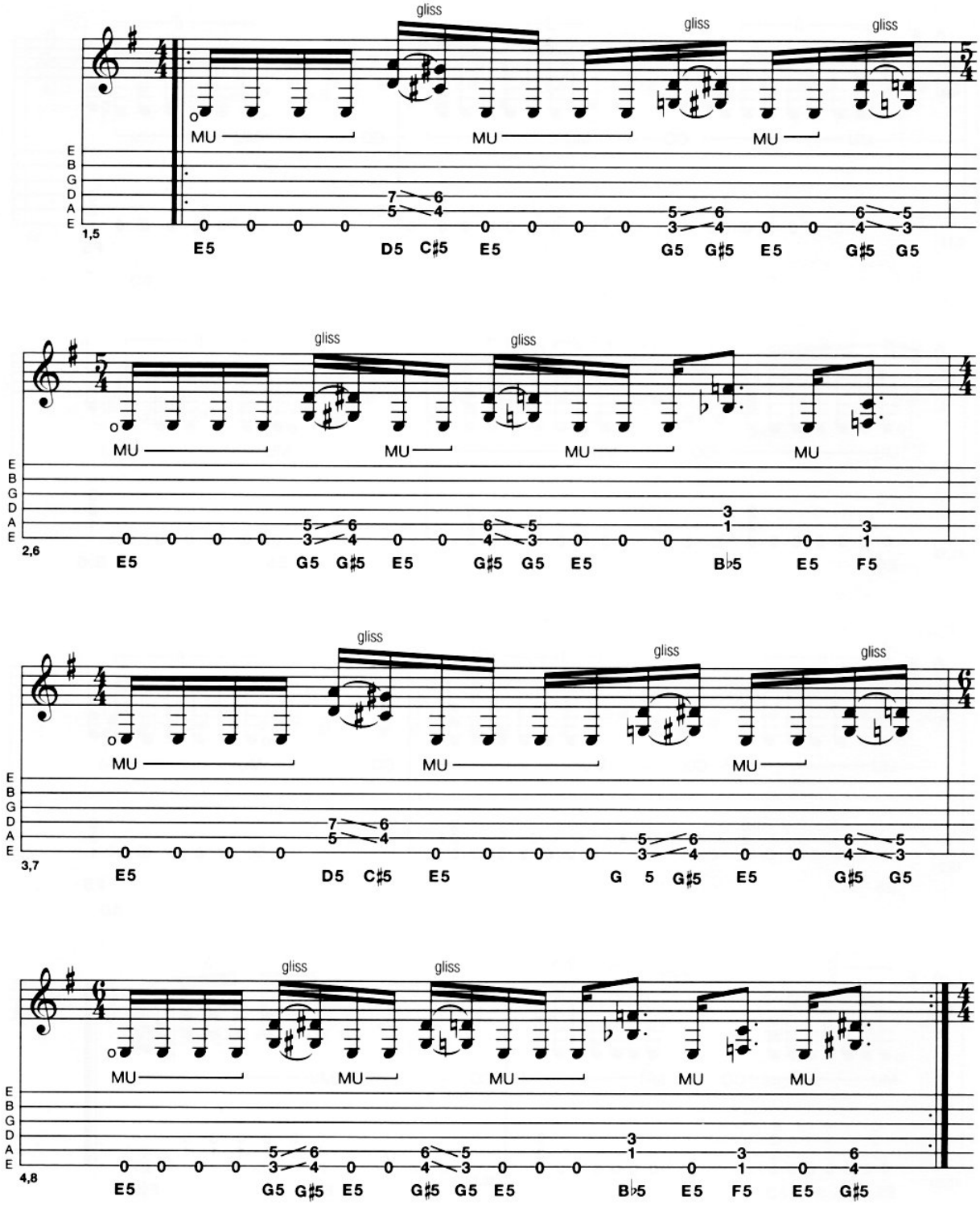
If you cast your mind back to the brief part about unusual chord changes a little earlier on, you'll notice that everything I said about moving between A minor and C minor is applicable here – I'm just using the ideas a tone lower down. Changes like these can bring out the fusion player in you, so there's a touch of that style in the demo solo. Note how the licks bridge the chord changes...

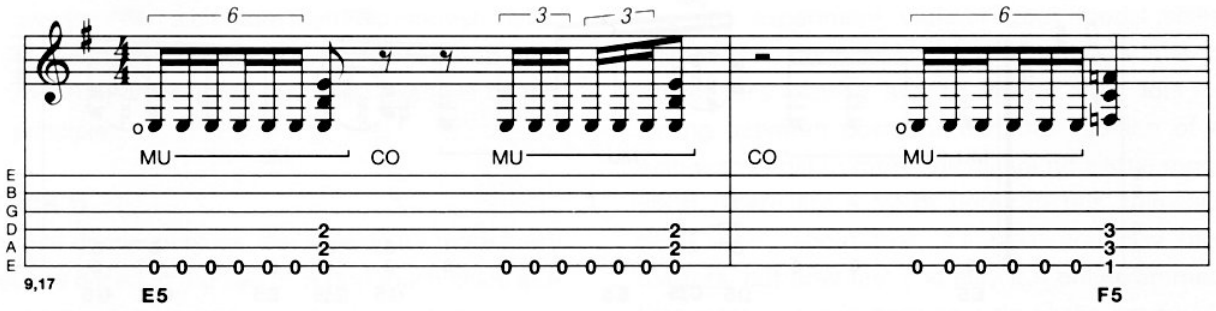
Track 8

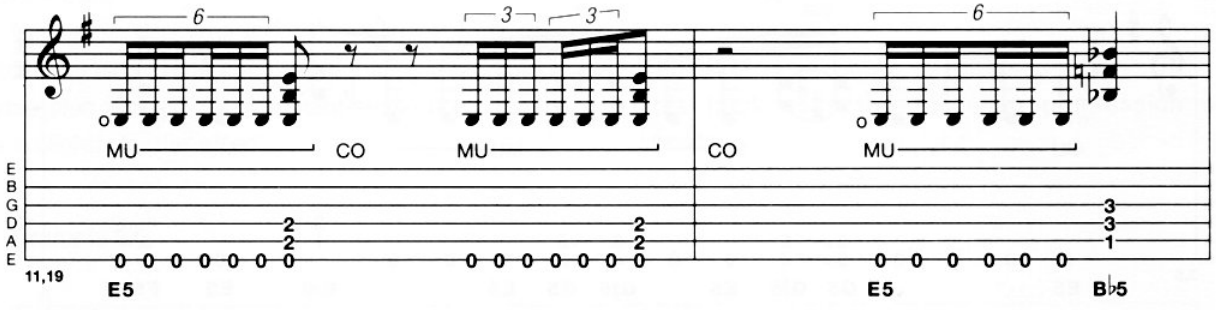
After all that soloing, I'd like to leave you with a study in metal rhythm playing, so crank up that gain, scoop all the mid-range out of your sound and try working through the following transcription piece by piece. There are some more odd time signatures here, but you should get a feel for them once you've tried counting along with the CD demo.

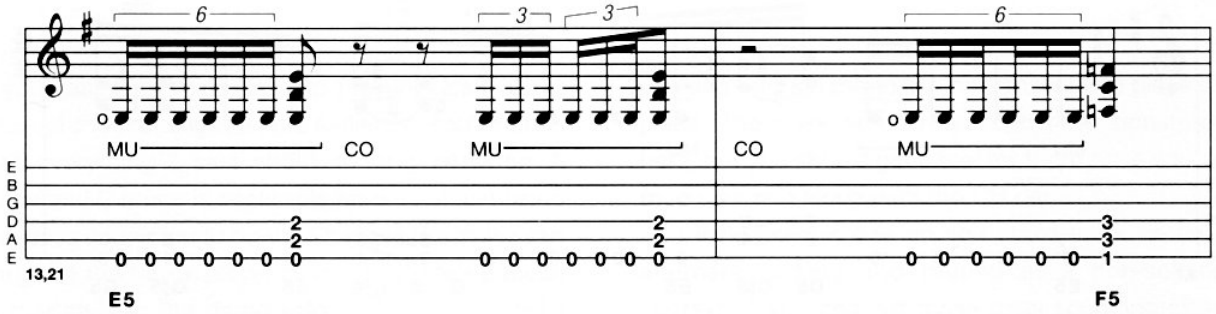
I included this one so you could work on your alternate picking and muting in a non-soloing context. If you can get those gaps sounding clean with an overdriven amp setting, you can take a moment to congratulate yourself on the efficiency of your string-damping technique.

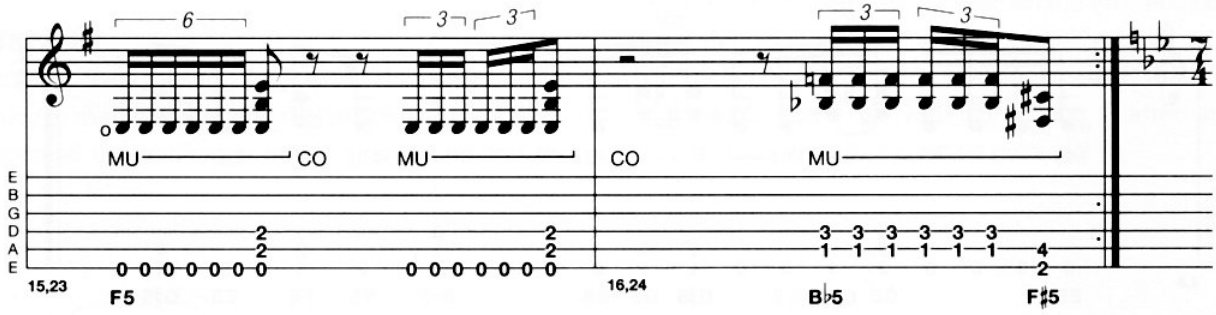
I didn't include a demo solo for this one, but I'm sure you'll come up with something – after all, you're now officially a creative guitarist!

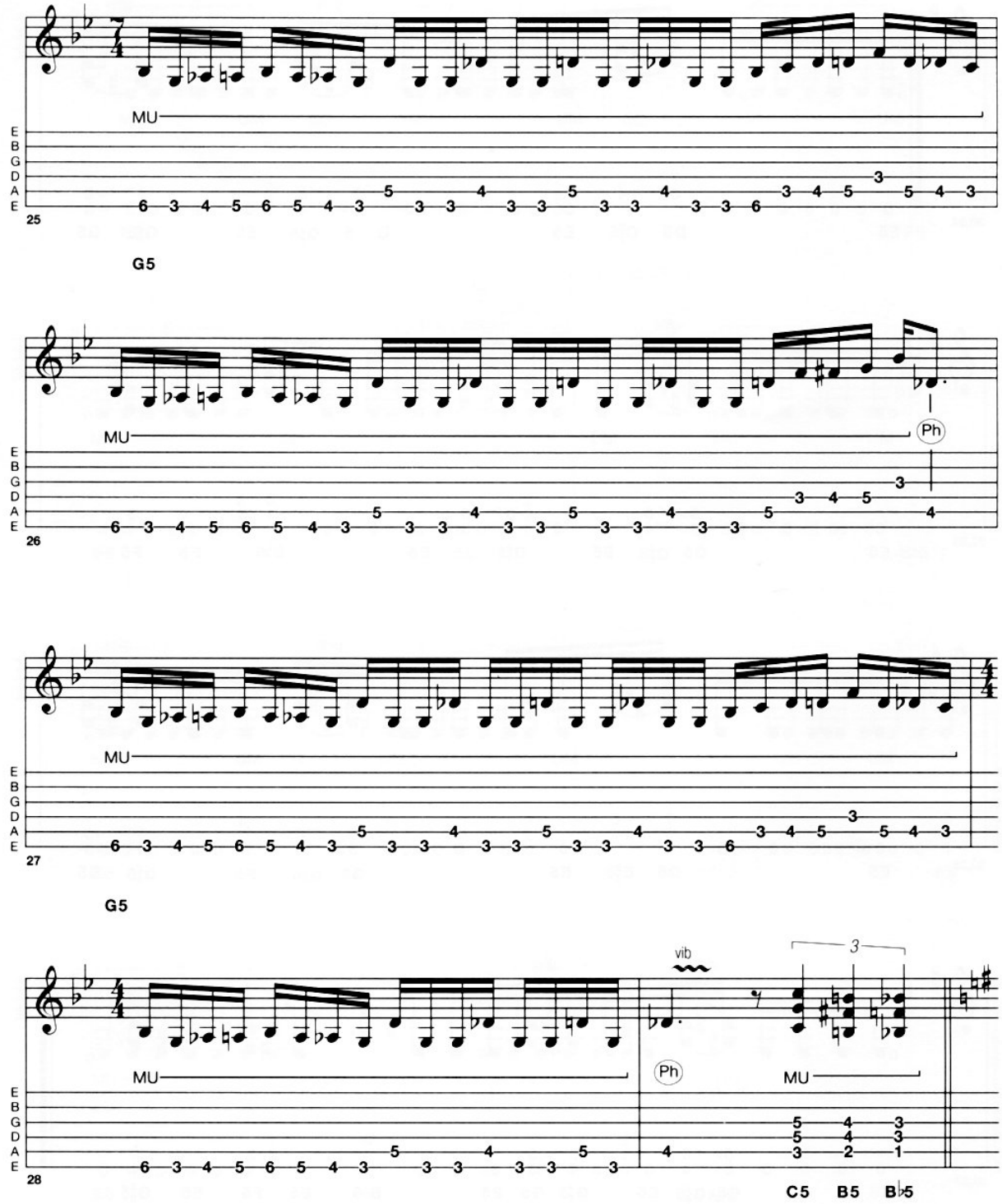

gliss
gliss
gliss
MU
MU
MU
E B G D A E
1,5
E5 D5 C♯5 E5 G5 G♯5 E5 G♯5 G5
gliss
gliss
MU
MU
MU
MU
E B G D A E
2,6
E5 G5 G♯5 E5 G♯5 G5 E5 B♭5 E5 F5
gliss
gliss
gliss
MU
MU
MU
E B G D A E
3,7
E5 D5 C♯5 E5 G 5 G♯5 E5 G♯5 G5
gliss
gliss
MU
MU
MU
MU
MU
E B G D A E
4,8
E5 G5 G♯5 E5 G♯5 G5 E5 B♭5 E5 F5 E5 G♯5

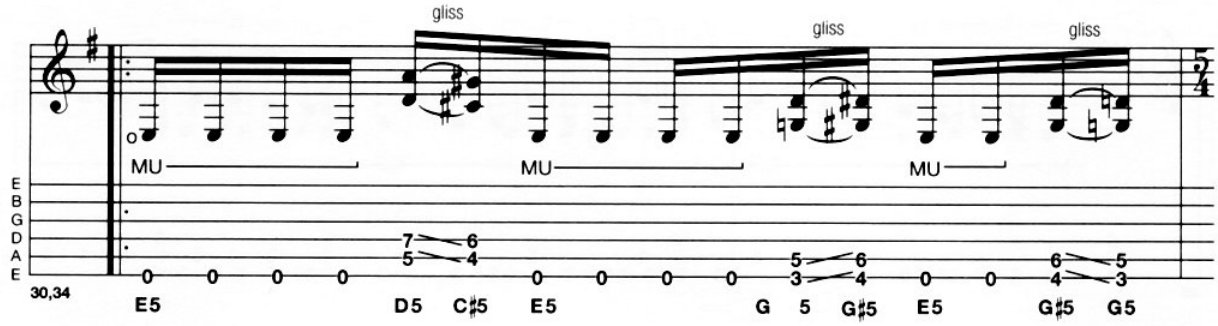

6
3
3
6
MU
CO
MU
CO
MU
E
B
G
D
A
E
9,17
E5
F5

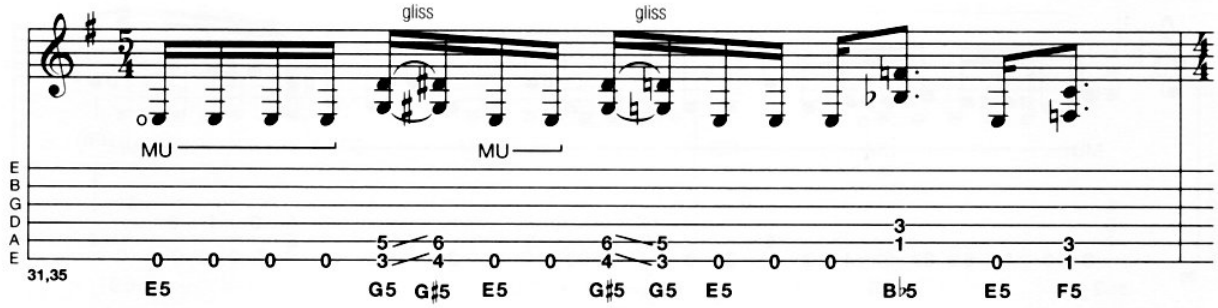

6
3
3
6
MU
CO
MU
CO
MU
E
B
G
D
A
E
11,19
E5
E5
B♭5

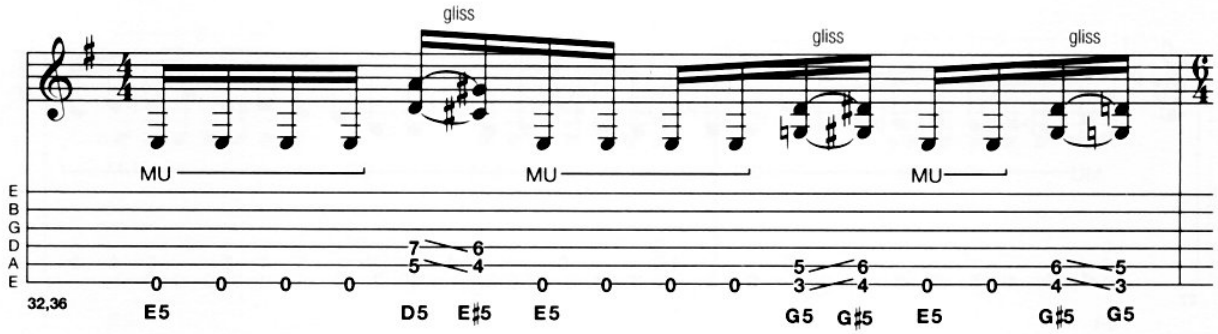

6
3
3
6
MU
CO
MU
CO
MU
E
B
G
D
A
E
13,21
E5
F5

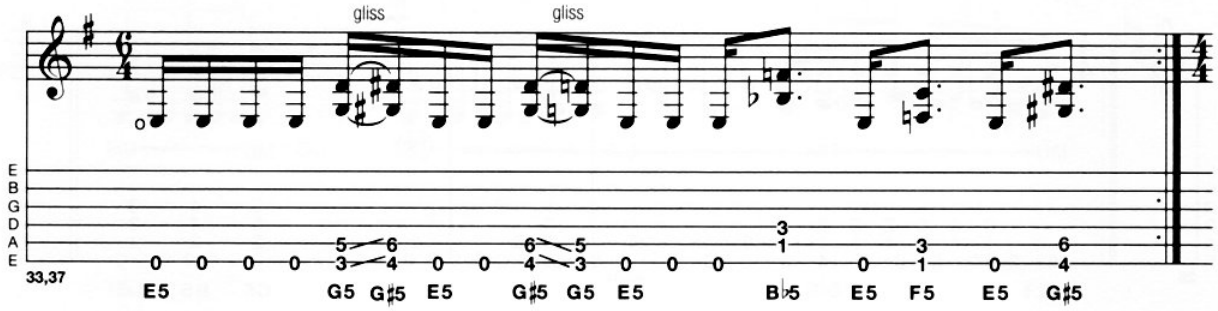

6
3
3
3
3
MU
CO
MU
CO
MU
E
B
G
D
A
E
15,23
F5
16,24
B♭5
F♯5

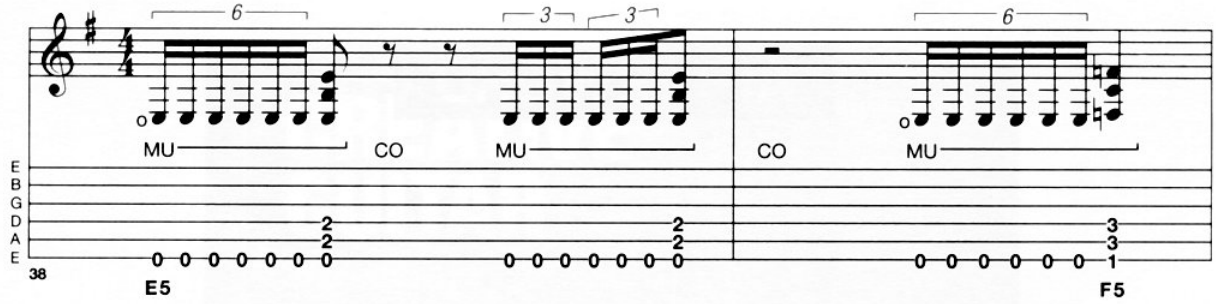

MU
E
B
G
D
A
E
25
G5
MU
Ph
26
MU
27
G5
vib
3
MU
Ph
MU
28
C5
B5
B♭5

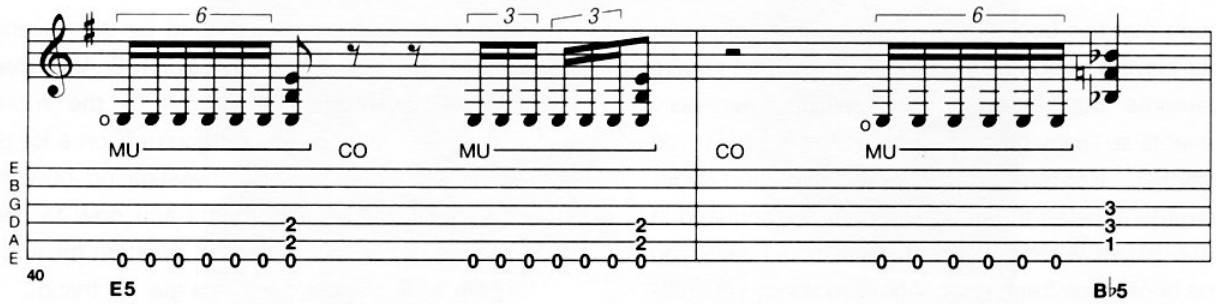

gliss
gliss
gliss
MU
MU
MU
E
B
G
D
A
E
30,34
E5
D5
C♯5
E5
G
5
G♯5
E5
G♯5
G5

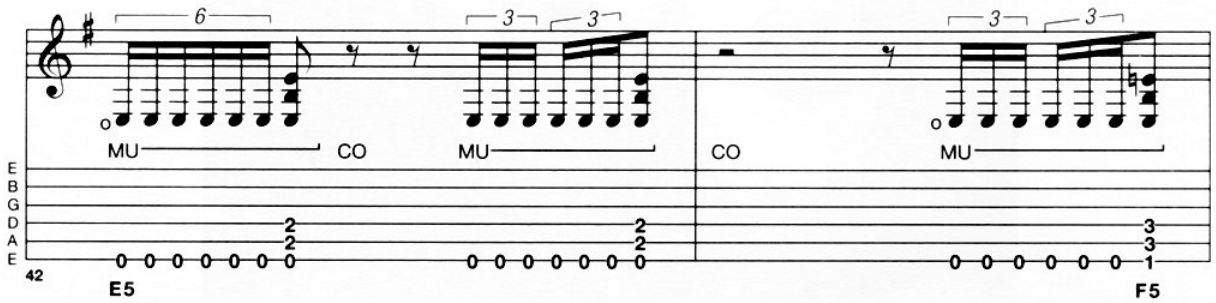

gliss
gliss
MU
MU
E
B
G
D
A
E
31,35
E5
G5
G♯5
E5
G♯5
G5
E5
B♭5
E5
F5

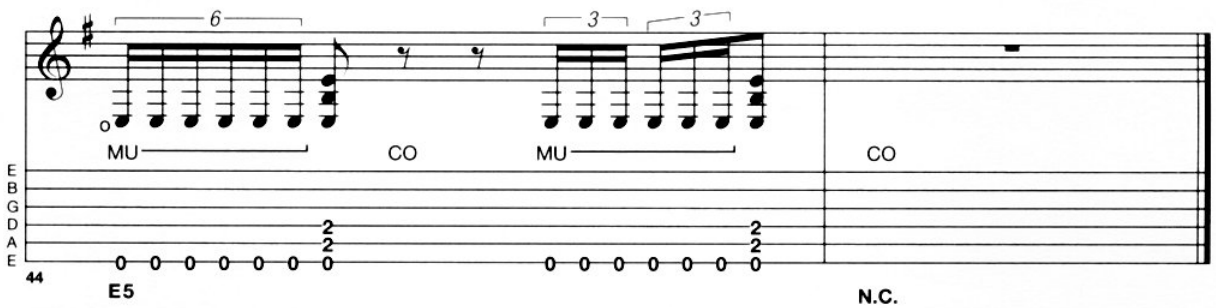

gliss
gliss
gliss
MU
MU
MU
E
B
G
D
A
E
32,36
E5
D5
E♯5
E5
G5
G♯5
E5
G♯5
G5


gliss
gliss
E
B
G
D
A
E
33,37
E5
G5
G♯5
E5
G♯5
G5
E5
B♭5
E5
F5
E5
G♯5


6
3
3
6
MU
CO
MU
CO
MU
E
B
G
D
A
E
38
E5
F5


6
3
3
6
MU
CO
MU
CO
MU
E
B
G
D
A
E
40
E5
B♭5


6
3
3
3
3
MU
CO
MU
CO
MU
E
B
G
D
A
E
42
E5
F5

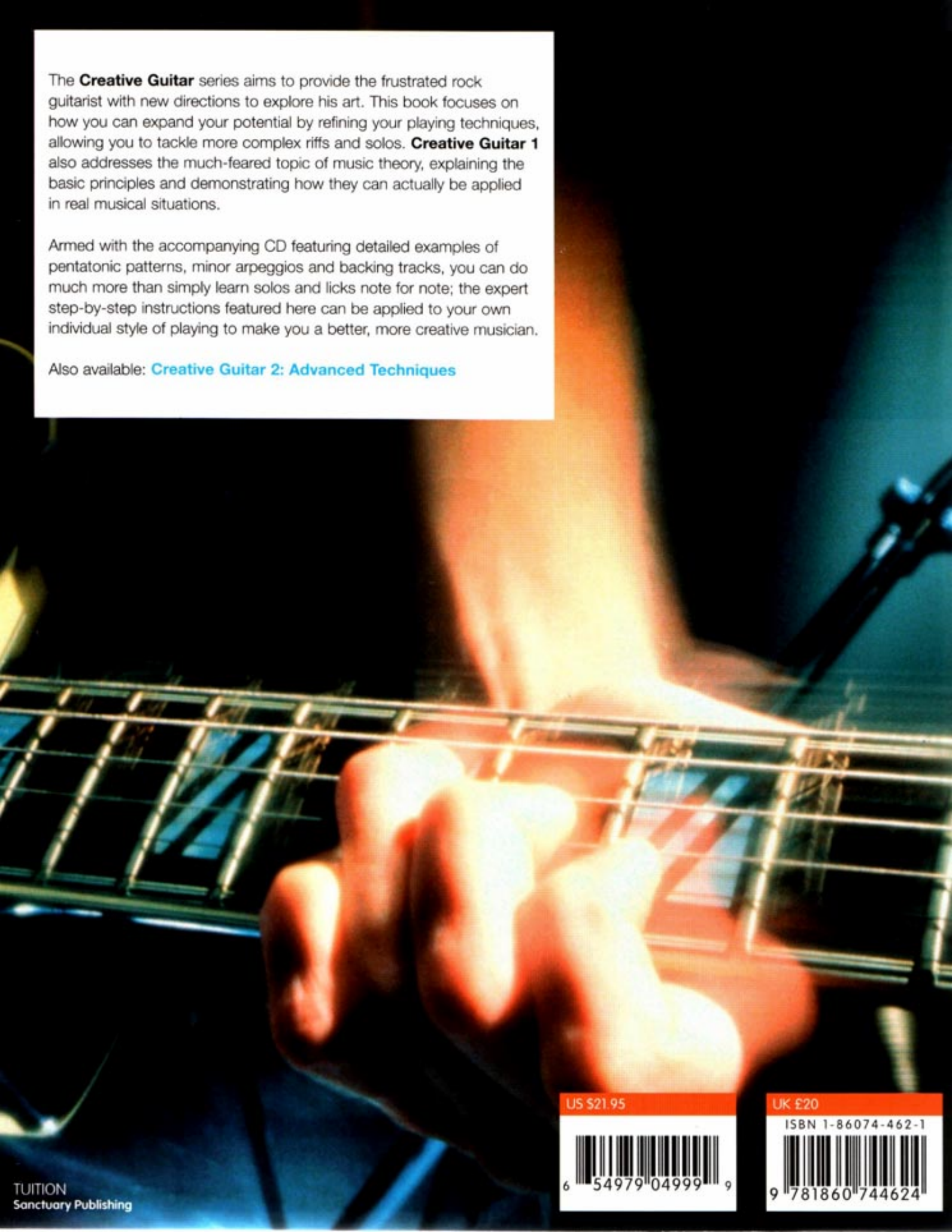

6
3
3
MU
CO
MU
CO
E
B
G
D
A
E
44
E5
N.C.

AFTERWORD

I hope that this book has inspired you to think about your playing in some new ways and helped you to overcome that fear of theory which needlessly prevents so many guitarists from achieving their true potential. Remember to keep exploring your instrument, using the information you've acquired in these pages whenever you think it could save you time or give you fresh ideas. Above all, enjoy yourself!

Perhaps you'd even be intrigued by the second book in this series, titled *Creative Guitar 2: Advanced Techniques*, which explains some of the more advanced guitar techniques and goes off on a lot of interesting tangents, such as investigating how to steal licks from other instruments and how to use exotic scales not normally heard in Western music.

No? Oh well. You can't blame a guy for trying!



The **Creative Guitar** series aims to provide the frustrated rock guitarist with new directions to explore his art. This book focuses on how you can expand your potential by refining your playing techniques, allowing you to tackle more complex riffs and solos. **Creative Guitar 1** also addresses the much-feared topic of music theory, explaining the basic principles and demonstrating how they can actually be applied in real musical situations.

Armed with the accompanying CD featuring detailed examples of pentatonic patterns, minor arpeggios and backing tracks, you can do much more than simply learn solos and licks note for note; the expert step-by-step instructions featured here can be applied to your own individual style of playing to make you a better, more creative musician.

Also available: **Creative Guitar 2: Advanced Techniques**

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